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PALESTINE

Annual Report

of the

Department of Agriculture and Fisheries

for the year ended 31st March, 1937

by

M. T. DAWE, O.B.E., F.L.S.

Director of Agriculture and Fisheries

JERUSALEM

PRICE 100 MILS.

URI DAVIS COLLECTION

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1 metric dunam = 1000 square metres = 0.2471 acre approx.

1 acre = 4.0467 metric dunams approx.

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SECTION I.

AGRICULTURE AND FISHERIES.

GENERAL.

The year 1936 was unhappy. Crops were generally below average. The disturbances prevented farmers from transporting to the towns most of their vegetables, fruits and poultry. Prices were high in towns but exceptionally low in rural areas. The Jewish farmer had the twofold task of working by day and guarding his farm at night. The Jewish farmers also suffered some losses by burning of crops and uprooting of trees. The disturbed state of the country precluded the launching of new schemes, and later, the financial situation had deteriorated and dictated the postponement of schemes involving new expenditure and the expansion of existing services. Likewise the scheme for the distribution of £P.50,000 as long term loans to hill villages had to be suspended, but has since been resumed. Jewish personnel had to be transferred from out-stations for reasons of security. On the whole, routine services and discipline were well maintained except that all save six students at the Kadoorie Agricultural School, Tulkarm, went on strike under the influence of outside political agitation, which involved the closing of the school.

From the 1st April, 1936, the Forest Service which had previously formed part of the Department of Agriculture was established as a separate department in conformity with a procedure now established in most Colonies where the Forest Service is separate and independent of the Agricultural Service. In consequence of this reorganisation, Mr. F.J. Tear, the Deputy Director of Agriculture and Fisheries, who was also the Chief Forest Officer, retired on pension on the 6th October, 1936.

In June, 1936, the new Chief Fisheries Officer, Mr. A.L. Craig-Bennett took up his duties and the Fisheries Service was reorganised and strengthened, and a new impetus given to fisheries development.

In August, 1936, Mr. J.A. Craig took up his duties as Agricultural Education and Research Officer. His duties were to co-ordinate all forms of research and agricultural education between the Department and grant-aided institutions.

Rainfall in December, 1935, and January, 1936, was exceptionally low, with the result that production of the winter cereal crops in 1936 was much below the average. Moreover, the rains of 1936 though satisfactory were insufficient, owing to the lack of moisture in the soil, to produce good summer crops. The melon and tobacco crops were, however, satisfactory; but heavy damage was done to olives by hot dry (sirocco) winds at the time of the setting of the fruit, with the result that the crop was very small.

Citrus exports, however, attained a new record of 10,786,365 boxes for the 1936/37 export season.

The condition of live stock throughout the year was good on the whole.

PESTS.

Heavy and widespread attacks of *Scythris temperatella* (Ed Duda) were favoured by dry conditions, and the department continued to advise farmers to change their rotation and plough their stubble lands immediately after harvesting. Where such methods had been adopted, the pest was almost eliminated.

FIELD MICE.

There were only a few outbreaks of small colonies of field mice which did not constitute a serious menace.

MEDITERRANEAN FRUIT FLY AND *Capnodis spp.*

These pests are becoming increasingly serious, and measures to combat them are explained in the accompanying report of the Chief Plant Protection Officer.

BLACK SCALE.

Only 87,000 citrus trees were fumigated against black scale owing to difficulties resulting from the disturbances.

PRODUCTION.

The following table shows the yields of main crops compared with those in preceding years :—

METRIC TONS.

	1932	1933	1934	1935	1936
Wheat	56,186	48,305	85,171	104,353	76,059
Barley	29,496	32,580	70,308	68,905	55,169
Lentils	2,178	1,607	2,176	2,698	2,379
Kersanna	4,901	3,268	4,738	8,849	7,378
Beans	954	898	841	1,489	961
Peas	141	81	121	225	871
Durra	21,203	8,635	46,830	46,135	22,122
Sesame	894	292	2,658	6,914	1,847
Olives	6,559	3,599	6,647	45,092	15,755
Melons	31,727	20,748	36,447	68,799	81,335
Grapes	25,395	18,504	29,764	28,818	49,359
Tobacco	571	402	1,012	1,032	1,237
Vegetables	24,371	21,305	36,465	67,847	70,321

CITRUS.

The area under citrus was approximately 298,000 dunams at the end of March, 1937. Exports of oranges, grapefruit, melons and other fruits for the last five years are shown below :—

Year	Oranges	Grapefruit	Lemons	Other Citrus Fruits	TOTAL
	Boxes	Boxes	Boxes	Boxes	Boxes
1932/33	4,240,765	244,603	12,873	—	4,498,241
1933/34	5,095,351	408,184	19,798	—	5,525,334
1934/35	6,507,995	791,661	30,058	1,132	7,330,846
1935/36	4,997,302	850,120	46,915	2,973	5,897,310
1936/37	9,166,903	1,538,301	70,792	10,368	10,786,365

The United Kingdom was again the principal market, absorbing just over 70% of the total export from Palestine. Exports to the Continent increased from 1,182,283 boxes in 1935/36 to 3,019,417 boxes in 1936/37. Prices were lower than usual, and on account of heavy losses due to wastage caused by exceptionally heavy rains, and the cost of repacking overseas, orange growers last year derived very small profits from oranges and little, if any, profit from grapefruit.

The advertising fee was increased on the 1st September, 1936, from 3 to 3½ mils per box in order to carry out an extensive advertising campaign in the United Kingdom, in European countries, India, and in Palestine. A total of £P.20,393 was spent and the increase in the fee and in the exports enabled the debit balance on the fund for the previous year to be repaid, and also left a balance in hand to enable the advertising campaign to be conducted on a larger and more effective scale in 1937/38.

POTATOES.

The area and production of potatoes continues to expand satisfactorily from year to year as the following statement shows :—

Year	Area under Cultivation	Yield
	Dunams	Metric Tons
1931/32	2,863	929
1932/33	3,835	974
1933/34	5,252	1,884
1934/35	6,142	2,850
1935/36	9,654	5,000

Very satisfactory crops were raised from seed potatoes imported from the United Kingdom in 1935, and a further 250 tons were imported in 1936 by the Department for demonstration purposes and sale to farmers at cost price. Storage of seed potatoes in Palestine presents difficulties which, though still under investigation, have not yet been satisfactorily solved.

OTHER VEGETABLES.

Very considerable activity among market gardeners has increased the area under production of vegetables. Locally-grown foreign varieties are now appreciated by all sections of the community, and in the case of tomatoes, only a very small proportion grown in the country is now of the rough indigenous type. Jewish vegetable growers pay considerable attention to the importance of packing and grading for the market. Arab growers have not yet generally paid sufficient attention to this aspect, mainly because of the absence of marketing societies for the co-operative sale of their produce.

TOBACCO.

Although the area and quantity of tobacco is increasing, growers generally do not yet pay sufficient attention to the curing and baling of their leaf. It is estimated that the 1937 harvest will be double that of 1936, with the result that local prices may fall. Most of the crop continues to be used by the local factories for local consumption; and it is feared that there will be considerable over-production in 1937 to the detriment of growers as they have not yet succeeded in forming co-operative societies so as to secure optimum conditions of production and marketing.

FORAGE.

There has been a continued expansion of areas sown to forage crops. In the plains, special attention has been given to maize, berseem, and lucerne.

LOANS FOR PURCHASE OF CEREAL SEEDS.

As the sowing season approached towards the end of 1936, it became evident that there was little surplus grain in the country. Government therefore issued loans in cash to farmers totalling £P.34,000 for the purchase of seed which has contributed largely to the bumper crops of 1937.

FISHERIES.

As a result of the disturbances, the recorded catch of fish reflects a decrease compared with that of the preceding years, vide the following table :—

	Tons			Value		
	1934/35	1935/36	1936/37	1934/35	1935/36	1936/37
				£P.	£P.	£P.
North :—						
Zib	32	32	11	1,124	1,105	487
Acre	65	80	45	3,261	3,686	2,085
Haifa	495	626	631	17,484	18,297	14,168
Tantura	19	16	16	1,109	920	733
South :—						
Jaffa	584	669	487	19,528	22,761	14,665
Jura	87	100	63	3,216	3,941	2,066
Gaza	38	91	34	1,540	3,321	1,249
Lake Tiberias	270*	225	252	4,538*	6,483	7,694
Lake Hula	250*	91	66	5,000*	2,015	1,788
Total	1,840	1,930	1,605	56,800	62,529	44,880

There is little change to record in the total numbers of boats and fishermen engaged in the fishing industry.

Imports of fresh fish slightly exceeded in tonnage and value the local catch of fish. Imports of fish, in all forms, are shown in the following table :—

	1934		1935		1936	
	Tons	£P.	Tons	£P.	Tons	£P.
Fish in brine, salted and smoked	1,660	37,812	1,632	37,706	2,012	43,636
Tinned Fish	1,112	49,389	1,471	68,707	1,208	56,095
Fresh Fish	1,458	54,518	1,755	67,151	1,674	65,171
Total	4,230	141,719	4,858	173,564	4,894	164,902

There is satisfactory evidence, referred to in more detail in the Chief Fisheries Officer's report, of the growing increase in trawl fishing.

AGRICULTURAL MACHINERY.

There is continued progress in the use of agricultural machinery and both Arab and Jewish farmers are purchasing tractors, threshers, reapers and cultivators. The value of imported agricultural machinery, during the past five years, is shown below :—

Year	£P.
1932	12,014
1933	61,273
1934	77,467
1935	100,935
1936	68,831

MANURES AND FERTILISERS.

Increased purchase of artificial fertilisers continues to reflect the efficacy of departmental efforts in experiments and demonstrations and in propaganda in the villages. Total imports of all kinds of manure and fertilisers are shown in the following table :—

Year	£P.
1932	61,689
1933	99,656
1934	109,208
1935	99,651
1936	82,401

* These are estimated figures as no data were collected prior to the appointment of the Fishery Officer, Tiberias.

SECTION II.

WORK OF THE DEPARTMENT.

AGRICULTURAL EXPERIMENT STATIONS AND DEMONSTRATIONS.

The area of the agricultural section of the Farradiya Station was extended by a further 200 dunams, and a small area at the Sarafand Citrus Station was allotted for vegetable experiments. Despite the fact that crop yields in 1936 were below average, the yields obtained from agricultural stations were considerably higher than those obtained by neighbouring farmers. The area under crops at all agricultural stations was 2,283 dunams as under :—

Wheat	650	dunams
Barley	389	"
Oats	141	"
Leguminous crops	395	"
Forage crops	180	"
Maize	388	"
Other summer crops	140	"
Total	2,283	"

Selected seed grain, amounting to 98½ tons were reaped, and after allowing for the requirements of agricultural stations, 29 tons were made available for extension work in agricultural schools and demonstration plots, and 52 tons were distributed or sold to farmers. In addition, there were distributed to farmers from Government agricultural stations, over one million seedlings and 100 kilogrammes of seed of various varieties of vegetables.

Large numbers of demonstration plots were again maintained in the districts. There were 36 farms of 75 dunams in co-operation with farmers to demonstrate the value of a good rotation. There were 23 farms of 50—100 dunams for the growing and propagation of seed, 35 plots to demonstrate measures for combating Ed Duda (Scythris temperatella), 37 plots for fertiliser demonstrations, 104 plots for potato variety trials, and some 600 plots for forage and maize.

Work done at the Government Agricultural Stations at Farradiya, Acre, Beisan, 'Ein 'Arrub, Jericho and Majdal is explained in detail in the enclosed report of the Chief Agricultural Officer.

HORTICULTURAL EXPERIMENT STATIONS.

Nine horticultural stations are maintained at Farradiya, Nablus and 'Ein 'Arrub in the hills; at Majdal, Sarafand and Acre in the plains; and at Jericho, Farwana and Beisan in the Jordan Valley below sea level. The work at these stations was restricted, in the main, to consolidation and to the collection of data.

A scheme for recording annually measurements of the growth of deciduous trees has been commenced and observations taken as to compatibility of stocks and scions.

During the disturbances, some citrus trees, vines and olives were uprooted at Farwana Station. The only other damage done was of a minor nature at 'Ein 'Arrub and Farradiya.

The Horticultural Station at Acre was extended from 20 to 200 dunams to allow of a scheme of rotation for nursery work.

Some 100,500 vines and 89,233 fruit trees, mostly deciduous, were raised at five nurseries. Of these, over 70,000 vines and 50,000 fruit trees were sold at cheap rates. Approximately 22,000 vines and 8,000 fruit trees were distributed free of charge.

FRUIT DEMONSTRATION PLOTS.

The fruit demonstration plots were increased from 24 to 29. Of these plots 5 were for vines, 5 for olives, 18 for deciduous fruits, and 1 for dates. Good results were obtained from the application of fertilisers on vines at Hebron. After treatment for three years, 4,200 kgs. of grapes were obtained from 150 fertilised vines as compared with 2,505 kgs. from

a similar number of unfertilised vines in the same vineyard. A close study was made of the composition of an area of 3,450 dunams of vineyards which revealed that the majority of vineyards in settlements in the southern coastal plains are raised from cuttings; 539,034 vines out of a total of 835,826 were found to be ungrafted. The majority of the grafted vines were of Khalili stock, a local vigorous stock which is not resistant to Phylloxera. An expansion of vineyards of wine grapes has resulted from the re-opening of the market for wines in the United States of America.

CITRUS FRUIT INSPECTION.

Some 211,800 boxes, or 1.96% of the total boxes exported, were rejected after inspection. Most of these boxes were repacked under the supervision of fruit inspectors. The principal causes for rejection were :—

Waste	63,179	boxes
Mechanical injuries	50,855	"
Irregular sizing	13,710	"
Red scale	12,532	"
Fumagine	9,403	"
Mediterranean fruit fly	7,287	"
Mussel scale	5,714	"
Black scale	440	"

CITRUS FRUIT INSPECTION.

The control of private plant nurseries was commenced in 1936 in order to stimulate and improve plant production. Some 178 nurseries were inspected of which 68 were approved for registration and 63 were licensed.

INSPECTION OF PLANTS.

Altogether 8,492 consignments of plant imports were inspected by plant inspectors of the Plant Protection Service at Jerusalem, Jaffa, Haifa, Acre, Tel-Aviv, Jenin, Rosh Pinna and Ras en Naqura. Some 132 consignments were confiscated on the grounds of being infected with injurious pests or diseases.

INVESTIGATIONS, RESEARCH AND ENTOMOLOGY.

Arising out of Dr. Tomkins' report on his investigation into the possibilities of gas storage of oranges conducted in March, 1936, attention has been given to schemes of research into the heavy incidence of fruit wastage. A scheme has since been prepared and has been forwarded to the Director of Food Investigation in England, and it is hoped that the research will be undertaken during the export season 1937/38.

Details are given in the Chief Plant Protection Officer's Report of research in progress, particularly concerning black scale (*Chrysomphalus ficus*), Mediterranean fruit fly and *Capnodis*, which at present may be regarded as the three major pests of citrus and other fruit trees.

VETERINARY.

No outbreak occurred during the period under review of any serious epizootic disease, such as cattle plague or contagious bovine pleuro-pneumonia.

According to the last animal enumeration made in July, 1934, there were in the country 131,000 cattle, 188,000 sheep, 380,000 goats, 4,500 buffaloes, 15,600 horses, 7,000 mules, 75,000 donkeys, 32,000 camels and 1,500,000 head of poultry. The enumeration of animals is made every two years but, owing to the disturbances, it was not possible to carry it out when due, namely, in July, 1936.

There has been a considerable decrease in the number of animals imported into Palestine as a result of the disturbances and subsequent economic depression. Some 320,000 animals were imported as compared with 520,000 during the preceding year, a decrease of 200,000 of which 191,000 were sheep and goats.

The 320,000 animals imported comprised 205,000 sheep, 61,000 goats, 34,000 cattle, 21,000 camels, 790 horses, 580 mules, 350 donkeys and 220 pigs.

There was a large increase in the number of poultry imported by sea for slaughter, namely, from 1,269,000 in 1935/36 to 1,839,050 in 1936/37. Imports of poultry by land decreased, on the other hand, from 717,000 in 1935/36 to 187,000 in 1936/37.

The eradication of bovine contagious abortion from dairy herds is making good progress from year to year, and most of the herds in settlements where cattle breeding is undertaken systematically are now under Government supervision. Twenty-one new herds were taken under control during the year and there are now 109 herds the cattle of which are regularly tested. Of these herds, 92 are free from bovine contagious abortion, while in the remaining herds, the incidence of the disease is gradually decreasing and the profitability of those herds from which the disease was entirely eradicated has greatly increased.

The losses due to tick-borne diseases in those settlements where cattle are dipped were considerably reduced and the value of regular dipping is now appreciated by dairy farmers. The same applies to sheep and goats, but due to the unsettled condition of the country last summer, regular dipping of such animals in the nineteen concrete baths erected with Government's assistance to date could not be conducted.

The blood testing of horses for the control of dourine was continued.

Some 68 outbreaks of anthrax were reported as compared with forty-eight last year. Over 21,000 animals were involved in these outbreaks of which 533 or 2½% died and the remaining animals were treated by vaccination. Protective vaccination of sheep and goats was most successful last year in the Jerusalem District and was continued during the first quarter of 1936, when 43,500 animals were vaccinated.

There were reported 122 cases of rabies of which 42 were confirmed by the Government Central Laboratories; 17,174 dogs, 2,103 cats and 653 jackals and others were destroyed during the year in towns and villages with the assistance of the Police and Local Authorities. Some 587 suspected biting animals were placed under observation, and of these 10 were found to be rabid.

There were no serious epidemics of poultry diseases recorded. Fowl pox is, however, widespread and in most of the up-to-date poultry farms, preventive vaccination is practised with satisfactory results. A number of outbreaks of fowl cholera and fowl typhoid were reported. The two Poultry Disease Officers of the Veterinary Service have given all necessary advice and assistance in combating reported outbreaks of poultry disease.

The work of the Veterinary Laboratory has continued to increase, especially in regard to control of contagious bovine abortion, and 28,705 agglutination tests were conducted. In connection with dourine control, 2,201 complement fixation tests were carried out. Over 150,000 doses of various vaccines and anti-sera were prepared.

ANIMAL HUSBANDRY.

The establishment of breeding stock at Acre Stock Farm was further increased by eight Karakul ewes purchased in Rumania, fourteen Damascus female goats, nine Damascus male goats and one Lebanese cow.

Thirty-five Government bulls were issued on loan to different villages and approximately one thousand two hundred cows were served by these bulls.

Seventy-three bulls and thirty-three jackasses were selected in various villages and their owners granted premiums in return for allowing their bulls and jackasses to serve all cows and donkey mares in the respective village; all scrub bulls and jackasses in such villages were sterilised.

Twenty-three Damascus male goats were lent to villages for crossing with the local breed of goat. The resultant progeny show a marked improvement. Sixteen Awasi rams were also issued on loan to demonstrate to villagers the benefit of using selected sires.

The castration of scrub male stock (over 25,000 animals) was continued in the villages.

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Beekeeping is developing from year to year and it is estimated that there are now 22,000 populated movable frame hives in the country. The total honey yield was about 275,000 kilogrammes.

Short courses of practical instruction in beekeeping were held at the Acre Government Apiary for beginners, and over fifty students attended; most of these later established apiaries.

Some 450 beehives with equipment were distributed during the year on the "hire-purchase" system to beekeepers in possession of the native type of hive and to others in possession of one or two movable frame hives, to encourage them to adopt the modern system of beekeeping which is more remunerative, and to assist them to extend their small apiaries.

Over 200 tons of duty-free sugar were sold to beekeepers, as the honey crop was below normal, to enable them to feed adequately their bees during the winter season.

The poultry industry has made further strides and almost all existing modern poultry farms were extended in capacity while a good number of new farms was established. A number of mammoth electric incubators was imported and installed in various parts of the country to meet the large demand for day-old chicks.

The production of eggs has been increased as can be evidenced from the increase in the number of eggs sold through the various co-operative societies (Jewish) viz. from nine million in 1925 to twenty million in 1936. Prices for fresh eggs remained normal but those for table fowl decreased considerably due to the big increase in cheap imports from overseas. The local demand for fresh eggs and table fowls exceeds by far the local supply; and imports during the year amounted to ninety-two million eggs and over two million head of live poultry, of a value of over £P.500,000. It is obvious that there are great possibilities for the development of the poultry industry but this is rendered difficult by large and cheap imports. It is hoped that the new duties introduced on the 22nd April, 1937, will tend to maintain prices and thus stimulate production to meet the increasing demand for poultry and eggs.

There were distributed from Government Poultry Stations and Apiaries 56,709 hatching eggs, over 7,000 chicks, cockerels and pullets, and 459 bee swarms.

AGRICULTURAL EDUCATION.

An Agricultural Education and Research Officer was appointed in August, 1936. This officer deals with all matters relating to agricultural education, research, publications and propaganda, and assists in the co-ordination of all forms of research by official and non-official workers and institutions.

As from January, 1936, a new publication has been issued monthly in the three official languages, as an "Agricultural Supplement" to the Palestine Gazette.

The establishment of the Palestine Broadcasting Service afforded an additional means of approach to the cultivator; and since April, 1936, "Talks" to farmers broadcast from the Jerusalem Studio of the Broadcasting Service have become a regular feature of the Broadcast Programmes, one lecture in Arabic and one in Hebrew being given each week.

Work in connection with agricultural research conducted under Government and private auspices was considerably hampered and delayed by the difficulty of travel and supervision during the disturbances.

KADOORIE AGRICULTURAL SCHOOL, TULKARM.

The summer term commenced on April 13th, 1936, but as has been stated the school was closed on April 25th, 1936, on account of a strike of the students. From that date until December 11th, 1936, the Military Forces occupied the school buildings. While the school was occupied, farm work went on satisfactorily and the wheat and barley fields gave good results. The vegetable garden was increased and the produce was sold at good prices. The live stock are in a satisfactory condition and promising calves of the South Devon—Baladi cross are being obtained.

Hatching eggs of a new Leghorn strain are being introduced into the poultry section. The Baladi pen has again done well, and particular attention is being paid to this breed.

The apiary attached to the School farm has been maintained in good order, and honey extracted from the hives was in good demand and sold well.

KADOORIE AGRICULTURAL SCHOOL, MOUNT TABOR.

The area devoted to deciduous fruit trees has been completely planted and missing trees replaced. All the trees are doing well. Plum trees bore their first crop. The vineyards are developing nicely. Grapefruit trees gave their first fruits which were of excellent flavour. In the nursery, various fruit and forest trees are raised for filling up existing plantations and for afforesting the hill lands of the farm. A large supply of deciduous fruit stock was secured for grafting by the students. The bulk are for sale, and part for distribution to farmers in the vicinity.

Students are taught home canning and they utilised second grade vegetables and fruit grown on the farm for this purpose. Experiments are carried out on the suitability of different olive varieties for pickling.

This year, the dairy herd reflected a slightly higher average milk yield than that of last year. The yield was 4,085 litres per head, with a fat content of 3.55%.

The sheep flock consisting of 160 head, including 56 new-born lambs, is in a satisfactory state of health. The local breed is to be improved by selection with a view to raising the milk yield.

Some 270 laying hens are in the poultry section and beekeeping was commenced. A glass propagating house and three bungalows for the staff, which were under construction last year, have been completed.

The regular school work was interrupted by the disturbances, and for reasons of public security, it was considered advisable to close the school on the 7th June, 1936, when it was occupied by the troops. The school was reopened on the 20th December, 1936.

Advice was frequently sought by and given to farmers in the neighbourhood. The state of health at the school was in general satisfactory and no new cases of malaria were recorded.

METEOROLOGY.

Ten official meteorological stations are maintained where readings of air pressure, relative humidity, cloud, wind velocity and rainfall are recorded by observers. In addition, rainfall records are obtained from 60 non-official rainfall stations, and monthly statements of rainfall are compiled, showing comparisons with the averages of previous years for periods ranging from a few years up to 89 years. These statements together with the monthly weather reports, are published and distributed to institutions and individuals interested. Data for the year 1936 are attached hereto.

A Meteorogical Officer was appointed in the Department of Civil Aviation in November, 1936, and as from 1st January, 1937, the meteorological work, hitherto carried out by the Department of Agriculture, was transferred to the Department of Civil Aviation.

GENERAL AGRICULTURAL COUNCIL.

The General Agricultural Council with its nine committees and a total membership of 141 continued to give valuable advice to Government on various matters, such as the safeguarding of public water supplies, legislation to regulate the ownership and conservation of organic manure, and various problems connected with the export of the citrus crop.

The Council's deliberations on the poultry industry bore fruit on the 22nd April, 1937, when the customs duty on eggs was increased from 0.2 to 1 mil per egg during the season 1st February to 30th June and a duty of 25 mils per bird was imposed the whole year round. These duties, however, have not yet achieved their objects in full, as imports from Syria are not yet subject to duty under the special customs agreement with Syria of 1929.

The work of the Citrus Transportation and Marketing Committee culminated in definite proposals for legislation prescribing minimum standards for citrus ships. The enquiry of

the Rural Property Tax Committee resulted in reduction of the Rural Property Tax from 825 to 400 mils per dunam, on citrus lands, while the tax in the Acre Sub-District was reduced to 50 mils per dunam. This necessary measure of relief has been received by citrus growers with much satisfaction.

The other matters considered by the Council and its Committees are referred to more fully in the report of the Secretary of the General Agricultural Council which is attached hereto.

SECTION III.

FINANCE.

REVENUE AND EXPENDITURE.

The expenditure of the Department has increased from £P.40,678 in 1921 to £P.176,706 in 1936/37. The following table shows the expenditure on the principal services during the past two years :—

EXPENDITURE	1935/36 £P.	1936/37 £P.
Administration, Clerical, Accounts and Stores	11,012	13,584
Veterinary including Quarantine, Hospital, Contagious Diseases and Laboratory Services and Attendance to Police Animals	27,995	28,591
Agricultural Field Service, including Experiments and Demonstrations	27,486	25,701
Horticulture, Citrus Research and Fruit Inspection	30,071	34,911
Advertising of Citrus Fruits	18,922	34,325
Animal Husbandry	15,554	14,058
Entomological, including Fumigation and Plant Inspection at Ports of Entry	15,882	8,688
Kadoorie Agricultural Schools at Mount Tabor and Tulkarm.	13,677	13,697
Meteorological Service	445	—
Fisheries Service	1,172	2,034
Upkeep of Government House Grounds	808	1,117
Sericulture*	936	—
Forest Service*	20,563	—
Total ...	184,523	176,706

* The Sericultural Service has been abolished, and the Forest Service became a separate Department on the 1st April, 1936.

The revenue collected by the Department has increased from £P.4,226 in 1921 to £P.85,163 in 1936/37. The principal sources of revenue for the past two years are shown in the following table :—

REVENUE	1935/36 £P.	1936/37 £P.
Animal Quarantine Fees and Veterinary Receipts	30,065	22,370
Fruit Inspection Fees	9,846	15,787
Citrus Advertising Fees	18,504	34,199
Sale of Agricultural and Horticultural Produce	3,264	3,919
Stock Farm Receipts	579	3,271
Plant Fumigation Fees	849	803
Kadoorie Agricultural Schools	6,723	4,814
Forest Receipts*	5,080	—
Total ...	74,910	85,163

* The Forest Service became a separate Department on the 1st April, 1936.

Satisfactory liaison and co-operation with the Research and Experimental Stations of the Jewish Agency continued to be maintained. To assist the Jewish Agency in its research work, the results of which will be made available to the country as a whole, grants-in-aid were made during 1936/37 for the following purposes :—

	£P.
Citrus Research	3,000
Grant for experimental fruit growing at Hillside Station, Qiryat Anavim	300
Grant for Intensive Farming Experiments	300
Grant for Field and Garden Experiments	1,200
Grant for Animal Nutrition	500
Grant for Mycological Investigations.	350
Grant for Irrigated Fruit Tree Experiments at Geva	200
Grant for Non-irrigated Fruit Tree Experiments at Gvat	300
Grant for Studies in Rural Economics	400
Grants to the Hebrew University :—	
For Spirochaetosis Research	180
For Field Mice Investigations	200
Total ...	6,930

SECTION IV.

LEGISLATION.

During the period under review, rules were published prescribing the conditions under which cattle, sheep, goats, horses, mules and donkeys may be imported from the United States of America, while the conditions of import relating to Iraqi stock were revised.

Owing to the outbreak of foot-and-mouth disease, the importation of cattle by land from Syria, the Lebanon and Trans-Jordan, was prohibited in February, 1937.

To protect live stock during their conveyance by sea to this country from injury, overcrowding and unnecessary hardship and suffering, rules were published in October, 1936. These rules, which are cited as the Animal and Poultry (Sea Transport) Rules, 1936, are comprehensive, and prescribe, inter alia, the parts of the vessel where animals may be carried, the space to be allowed per animal and bird, the quantity of food and water to be taken on board, and the separation of different classes of animals.

New rules were made under the Fruit Export Ordinance of 1927 for the 1936/37 export season. The principal changes in these rules were the prohibition of the export of all large sizes of oranges below 120 to the box; the changing of the date of the commencement of the export season for oranges from November 15th to the 20th; a more precise definition of blemishes; and the option of export in a new type of box.

The Fisheries Ordinance was revised and enacted in February, 1937, and new rules thereunder were published on the 25th February, 1937. Generally, the new Ordinance and rules render it more feasible for the Fisheries Service to ensure compliance with fishing regulations in the interests of the industry itself; and higher penalties are prescribed for offences, such as taking fish by explosives or poison bait.

Legislative changes in regard to the reduction of the Rural Property Tax on citrus lands, and the increase of the duties on eggs and poultry have been referred to in other sections of this report.

It is my pleasure once again to place on record my thanks to the staff of the Department for the loyal support and assistance they have rendered, often under difficult circumstances, and also to members of the General Agricultural Council and Committees thereof for their valued co-operation and advice. These thanks are much more than formal, in view of the difficult and unhappy conditions which prevailed in 1936.

M. T. DAWE
Director of Agriculture and Fisheries.

REPORT BY THE CHIEF AGRICULTURAL OFFICER

FOR THE YEAR

1ST APRIL, 1936, TO 31ST MARCH, 1937.

STAFF.

There were no changes in the personnel of the Agricultural Service during the year. The shortage of agricultural inspectors in the sub-districts is keenly felt. For these officers extra training at the various agricultural stations is most desirable. Due to financial restrictions, the additional staff required for agricultural stations has not been appointed. Mr. S. Antebi acted for the Chief Agricultural Officer during his absence on leave.

GENERAL

2. Though the agricultural year of 1936, cannot be called one of the worst on record, yet the cumulative effect of a series of bad years made it more acutely felt. Crop yields ranged from a complete failure over the greater proportion of Beersheba, to well below the normal, as regards both quality and quantity for winter and summer crops over the major part of the country. Drought, generally unfavourable climatic conditions in January and February, sirocco winds in spring, and a heavy and widespread attack of Ed Duda all contributed to the above result.

3. The agricultural season to which this report refers has its commencement in October, 1935, and was ushered in by typical autumn weather. Variable winds, thunderstorms, and moderate temperatures culminated in southwesterly squalls which brought an early and general rain.

4. "Afir" or dry sowing had been in progress for about six weeks and was near completion. The early rain put the fallow land in excellent order for winter ploughing and there was a generally optimistic view for the season with such a good commencement. Particularly pleasing was the condition of the very considerable areas sown in the Beersheba district where in the northern, central and western sections at least, the germination and early growth presented a fine sight. No early rain fell in the southern and eastern areas and grain did not germinate until February when crops only provided light grazing.

Every opportunity for the preparation and sowing of large areas under very favourable conditions saw the largest area under winter crops for some years, and sowing was continued well on into January.

5. In some of the northern areas, localized falls of rain in December were so heavy as to cause considerable damage to hay still in stacks in the fields, and to vegetable growers in the Ghor. In the Galilean ranges so torrential was the fall that there was loss of life, of dwellings, and of practically the whole of the late maize crop in three villages. Unduly moderate temperatures caused a quick and luxuriant growth of natural grasses. Stock, both domestic and draught, was in excellent condition throughout the winter and no mortality among lambs and kids was recorded. Abundant supplies of tibn were on hand to augment natural grazing in the ploughing season. Fair early winter conditions continued over the more favoured parts of the country through January, but though well distributed, December and January rains were generally light. Disaster caused by dry conditions had already overtaken parts of the Beersheba Sub-District by the close of January where very extensive areas had died off after germination. Not since rainfall has been recorded by the Department of Agriculture, has the rainfall been so low for December and January taken either jointly or separately. Hillside water cisterns were but half full and springs were showing a poor output.

On the eastern slopes of the Judean hills and the Nablus Sub-District, winter cereals were in a precarious condition. Attacks of *Scythris temporatella*, and outbreaks of field mice due more or less to the dry conditions of February did not tend to allay the fears of farmers.

In Beisan, unirrigated crops were being fed off or turned under as early as February. So much for the onset of the season. A universally dangerous situation was only alleviated

by a general soaking rain in mid-February, but too late to be of benefit to the greater part of the Beisan, Tiberias and eastern districts. Only in the coastal belt and parts of the northern ranges were prospects favourable for anything but mediocre returns.

6. The spring saw farmers turning over land more or less dry for summer crops in the hope of conserving what little moisture was left. Wheat crops in the foothills of Hebron and Ramleh and in the ranges of Samaria were heavily infested with Ed Duda (*Scythris temperatella*) and were not showing any sign of recovery. Late sown wheat was severely damaged by siroccos.

Vegetable crops, unlike cereal and leguminous, had been generally excellent, but were unable to be placed on central markets owing to the hindrance of transport and so, appreciable quantities were left to rot in the fields.

The spring rains, good as they were and very beneficial in the coastal belt and in the northern areas, did not serve to bring the summer crops up to standard, owing to the light falls of winter. Only moderately extensive areas had been sown to durra and few farmers, except in favoured areas, ventured to sow any sesame.

Grazing continued to be sufficient and combined with stubble feeding, stock kept in good condition throughout the summer.

7. The olive crop was again poor, heavy damage being done to setting fruit by the sirocco winds.

8. Arab farmers with but a meagre harvest were mulcted of their store of seed grain to support the strike and what little surplus they had, after food requirements were set aside, could not be placed on the market. World prices of barley being already high, prices soared locally. Wheat was quoted at as high as £P.12 per ton; barley reached £P.8.500 per ton, and was difficult to obtain even at that figure. Exports to Europe from Syria had been heavy and merchants could secure but small supplies of barley from there. Customs duties on barley were temporarily abolished as were those on maize.

9. Departmental activities although mantained throughout the disturbances, were of necessity very considerably curtailed on account of the unsettled state of the country, the need for economy, and transfers of trained Jewish personnel. Neither the inception of new works nor the expansion of existing schemes was possible. The work at agricultural stations suffered to some extent owing to the necessary withdrawal of personnel. With one exception at Beisan, there was no damage of any kind done to Government stations.

10. Comparatively speaking, the results from agricultural stations in such a poor year were outstandingly good. In the dry areas at Majdal Station, surface cultivation of growing crops in addition to previous cultivation under dry farming methods had given very conclusive results. Heavy yields were obtained under the distinctly adverse climatic conditions. From all stations, 98½ tons of selected seed grain were reaped. After deducting station requirements, 52 tons were available for sale or distribution to farmers and 29 tons were set aside for extension work, and the use of agricultural schools.

11. It was unfortunate that for the first years' work there was a total failure of all crops on co-operative seed farms which had been established. These had been supplied with selected and graded grain purchased from farmers originally issued with seed from agricultural stations, and issues of 120 tons of wheat and 25 tons of barley were made. Owing to the bad season, recovery of these issues which should have been made in 1936 was postponed to 1937.

12. There were decidedly poor summer crops (as was expected) from sesame, durra and maize throughout the country. On the other hand cucurbitaceous field crops gave heavy yields, though the usually firm market for melons was non-existent. The tobacco crop was up to standard. The cessation of the disturbances in October found farmers actively preparing land for "Afir" sowing but with a serious problem facing them on account of a seed shortage over the greater proportion of the country and more especially in Beersheba district, the eastern regions and hill areas. Loans of £P.34.000 were approved and distributed in November and December in cash. Local merchants had but small stocks. Imports of wheat from Syria were considerable, farmers and merchants seeking seed grain as far north as Aleppo and Homs. Prices were high and the loans undoubtedly alleviated a great deal of distress and have contributed in no small degree to the extensive areas sown under cereals during the subsequent season.

13. Owing to the first general rain not falling until the last week in November, 1936, farmers were given every opportunity to sow very extensive areas under "Afir", and it is considered that at a conservative estimate, at least 80% of the season's crop was sown under that sytem.

Following the first rains there was but little break in the weather and an abnormally wet December, January and early February caused very considerable delay to farmers. Land was water-logged and sowing was not in many instances completed until late in February. A very excellent germination of both cereal and leguminous crops was recorded throughout the country, except where flooding on the low lying plains of Acre, parts of Samaria and Galilee had either precluded the possibility of sowing of winter crops, or had washed away the newly sown grain.

14. Grazing, very limited at the onset of the winter, was very poor throughout, and until the mid-spring of 1937, the hand feeding of stock was necessary. Fortunately, stocks of tibn were not scarce.

From a general rain in February until April 9th no further falls were recorded, and the prospects of a generally good season seemed to be fast disappearing. Any late sown crops were suffering. Barley crops over a very considerable area in Beersheba were dying and the late sown cereals of the plain of Esdraelon were in a precarious position. In the earlier district in the south, however, very fine stands of "Afir" sown wheat and barley were the rule and were in no danger. The April rain completely changed the situation, saving late sown wheat, negativing the heavy and widespread attacks of *Scythris temperatella* and assuring a fine sample of grain to early wheat crops. A heavy crop of both wheat, barley, and leguminous crops will be reaped in 1937, and it is confidently expected that yields will be in advance of any harvested during the last fifteen years. The lentil crop in the South is promising extraordinary heavy returns. Farmers took full advantage of the dry conditions of late February and March to turn over extensive areas of land for the summer crops. The favourable conditions materially helped by the April rain have more or less assured a good summer crop. Prospects for a heavy olive crop are equally bright.

SERVICES OF THE DEPARTMENT TO THE PUBLIC.

15. The trend towards more intensive cultivation continued.

The disturbances, however, had hindered boring and well sinking on the coastal plains, which had been very prominent during the past two years. Farmers who had water at their disposal were realising that green forage and vegetable production was a remunerative business. A rapid expansion of the potato growing industry due to good prices and increasing imports was particularly noticeable. A consignment of 240 tons of seed potatoes imported by the Government was readily disposed of at cost price. Prospective growers found difficulty in securing seed from the United Kingdom late in the season.

16. The issue of vegetable seed and seedlings was continued. Significant results from experimental work on the eradication of *Scythris temperatella* have been obtained in village plots on land known to be badly infested with the pest. Summer ploughing combined with a better rotation has definitely proved that the pest can be eradicated. The principal obstacles in the way of farmers putting the remedy into practice is the shortage and weakness of draught stock, and the system of land tenure in undivided shares (Masha').

18. The issue of seed grain, free of charge for small quantities, and on payment for larger quantities has been continued. During the year, 81 tons of grain were distributed to cooperating farmers. Many villagers and settlers are now growing nothing but seed originally secured from the Department of Agriculture and are eager to accept new selections.

19. Seed farms on which a total failure had been recorded for the previous year were again sown and there is every prospect that the nucleus loaned will be returned in the coming season.

20. The work of eradicating both insect and fungus diseases from farmers' grain has been continued successfully in co-operation with Dr. I. Reichert at the Laboratories at Rehovot and with the Plant Protection Service of the Department.

The efficacy of the treatment of seed before sowing has been appreciated by farmers who have increased their applications for fungicides. The use of the Departmental grading

machines was very considerably restricted owing to the disturbances. There is now, however, a good demand for their use. The purchase of more machines is envisaged in 1937/38.

21. The very marked increase in the area under vegetables is keeping markets well supplied with an excellent quality and variety of produce. Prices are considerably affected by the continued import of appreciable quantities from neighbouring countries, especially from Syria, free of duty.

Experimental work with varieties, on times of planting, and fertiliser trials in connection with the improvement of vegetables, has given significant results at the agricultural stations, and co-operative demonstrations of determinations obtained are being established in market gardens.

The gratis distribution of vegetable seedlings and seed from stations was continued through the year and 1,113,000 seedlings plus 100 kilogrammes of seed were given to gardeners. It is worthy of note that Arab market gardeners are now asking for different varieties of vegetable seedlings for the varied soil and climatic conditions at their holdings.

AGRICULTURAL MACHINERY.

22. The bad season combined with the disturbances was not conducive in promoting the purchase or progress in the use of agricultural machinery. There is a trend for villagers to purchase light reaping machinery and to avail themselves of mechanical cultivation of their lands by contract, and in some few instances to purchase tractors co-operatively.

In Jewish settlements the use of modern implements of all descriptions is general and has been considerably extended by the introduction of overhead irrigation systems and the increased use of rotortillers which are favoured especially by market gardeners. Imports of agricultural machinery for the year amounted to £P.49,315 as compared with £P.85,005 in the previous year.

MANURES AND FERTILISERS.

23. The dearth of organic manure in the country is still felt. Little progress in the utilisation of town refuse has been made, and the import of organic commodities such as guanos, huminol, and poudrette is comparatively heavy. The extension in the use of chemical fertilisers is apparent in Arab lands both on intensive and extensive holdings. The appointment of agents in villages by distributing firms has increased sales.

Imports of fertilisers for the period, amounted to £P.82,401 compared with £P.99,651 in the preceding year.

MARKETS.

24. Due to the disturbed state of the country there was practically no market, all transport being at a standstill, and it was only toward the end of the year that any reliable figures could be obtained.

25. Throughout the season the fluctuations in prices of cereals were very apparent with prices hardening as the year went on. The poor crop, high world prices, and the disturbances caused barley to rise by 90% and wheat by 25%.

With barley standing at £P.7.500 to £P.8.500 per ton, the import tariff was lifted, but little or no fall resulted, and prices remained high until the earliest barley was on the market. Leguminous grain was correspondingly high at the close of the year and only dropped to normal at the close of winter.

PRODUCTION OF WINTER CROPS.

The following table shows the yields during the past four years :—

	1933	1934	1935	1936
	Tons	Tons	Tons	Tons
Wheat	48,305	85,171	104,353	76,059
Barley	32,580	70,308	68,905	55,169
Beans	898	841	1,489	961
Kersanna	3,268	4,738	8,849	7,378
Lentils	1,607	2,176	2,698	2,379

27. With the exception of those on the coastal plain, returns from summer field crops were generally much worse than those for winter crops. Only very small areas were sown to sesame, and durra and maize crops, except in the more favoured areas on the coastal plain and in the northern areas, were very poor.

The melon crops on the sandy loam soils of the coastal belt were heavy, but owing to the disturbances, gave little if any profit to cultivators. The tobacco crop in the ranges of Acre and Galilee was good, and prices were remunerative.

The olive yield was perhaps the poorest on record, hot winds having caused a heavy drop just as the berries were setting.

PRODUCTION OF SUMMER CROPS.

	1933	1934	1935	1936
	Tons	Tons	Tons	Tons
Durra	8,635	46,880	46,135	22,122
Maize	345	881	8,840	4,336
Sesame	292	2,658	6,914	1,847
Melons	20,748	36,447	68,799	81,335
Olives	3,599	6,647	45,092	15,755
Tobacco	420	1,012	1,032	1,237

MAIZE.

28. There is little increase in the area sown to maize in Arab lands, except in the Hula belt where there is free flow irrigation. Maize is not usually sown on village lands under dry cultivation. Jewish settlements grow no durra at all, concentrating on maize as a summer crop. All settlements with dairying as the basis of their farms are particularly interested on the crop, growing it for silage, green feed or for grain. From introductions of varieties from abroad, "Boesman" has satified the settlers as the variety best suited to local conditions. Very considerable quantities have been distributed from Acre Agricultural Station and an extended area has been put down this year to endeavour to meet demands. The very considerable expansion of the poultry industry has contributed in no small degree to the good market for the yellow varieties.

VEGETABLES.

29. Of all agricultral activities none, perhaps, has engaged the attention of farmers to so great a degree in recent years, as has the production of vegetables. Any Arab or Jewish settler with either free flow or pumped irrigation is taking advantage of the good markets obtaining. He is at the same time calling the attention of Government to the necessity of restricting imports from neighbouring countries, more especially from Syria where cheaper water and cheaper labour exist and from which country, no customs are charged on imports. Notwithstanding the greatly increased production in Palestine, the imports are also on the increase, and for 1936 exceeded those of 1935 by 3,000 tons with a value of £P.23,000. This figure may be attributable, in part, to the difficulty of placing local produce on the market in 1936.

PRODUCTION AND IMPORTS OF VEGETABLES

Year	Production	Imports
	Tons	Tons
1933	21,305	15,395
1934	36,465	19,992
1935	67,847	27,810
1936	70,321	30,505

30. Among the many classes of vegetables produced the cultivation of tomatoes and potatoes still holds the particular attention of the gardener. The increase in the cultivation of the latter commodity has been phenomenal, almost doubling itself in area annually.

"Up-to-Date" still maintains the premier position as a heavy cropper with "Majestic" and "Duke of York" running in close competition. The question of storage is becoming one of importance with the increased output, and investigations into the possibilities are proceeding.

Seasonal planting is from November to March, later sown crops being under partial irrigation. The difficulty of obtaining seed for mid-September sowing under irrigation is keenly felt. Syrian seed cannot be imported on account of possible infection with potato tuber moth, while supplies from Canada which could be imported in time are prohibited owing to the danger of introducing the Colorado beetle.

31. Very considerable progress has been achieved in the output and improvement of the quality of tomatoes. Very few of the local or Baladi types are now to be seen in village or town markets. The requirments of canning and preserving factories for various types of vegetables are considerable. The possibility of an export trade to Central Europe, is being examined, being dependant on the selection of suitable varieties which can stand transport overseas.

While there is marked general progress in cultivation, progress in co-operative marketing, and the grading and packing of produce is confined mainly to Jewish settlements.

MISCELLANEOUS CROPS.

32. In addition to the main cereal and leguminous crops universally grown in the rotation and cropping system, there are small but increasing areas of oats, and moderately extensive fields under chick-peas and fenugreek. The imports of onions and garlic have given a decided impetus to the cultivation of these vegetables.

	1934		1935		1936	
	Area	Yield	Area	Yield	Area	Yield
	Dunams	Tons	Dunams	Tons	Dunams	Tons
Oats	3,140	251	4,503	360	8,504	611
Chick-peas	2,485	89	2,210	132	2,016	113
Onions & Garlic	1,723	1,200	8,960	8,200	13,323	4,663
*Fenugreek	9,090	148	7,914	166	8,206	173

*(Mainly used as green manure)

The cultivation of Sunn hemp, pigeon pea, asparagus, celery, and rhubarb, successfully demonstrated at agricultral stations has not as yet been adopted by villagers but is in many instances being practised by Jewish settlers, who find a ready market in the larger towns for the vegetables, and utilise the Sunn hemp for green manure and windbreaks.

TOBACCO.

33. The tobacco industry is definitely established in Palestine, but the quality of the leaf produced is still not of a sufficiently high standard for the overseas market. Considerable difficulty is met in restricting the area under cultivation so as to preclude the possibility of overproduction of Baladi rather than Turkish leaf. A certain amount of the former is necessary for blending but more often than not, applicants for licences to cultivate Baladi tobacco have in view the illicit disposal of the crop.

The season's crop was well up to standard and prices were remunerative.

Production of Tobacco.

Year	Area	Yield
	Dunams	Tons
1933	9,328	420
1934	19,948	1,012
1935	22,232	1,032
1936	29,959	1,237

Imports of Tobacco.

Year	Tobacco leaf		Cut tobacco		Cigarettes	
	Tons	Value	Tons	Value	Tons	Value
		£P.		£P.		£P.
1933	88	20,207	3	1,666	34	20,521
1934	127	32,339	4	2,229	47	28,388
1935	179	48,090	5	2,543	63	41,036
1936	151	47,359	6	3,125	56	35,628

34. Very favourable conditions in the present planting season have resulted in a distinctly extended area being put under crop, and it is estimated that the 30,000 dunams planted in 1936, will be doubled in 1937. Unfortunately the planting in 1936 has not been restricted to the region from which the best leaf is produced, notwithstanding the efforts of the field staff of the Agricultural Service co-operating with the Department of Customs Excise and Trade to confine planting to the northern ranges and Galilee.

It is increasingly evident that legislation may have to be enacted by which cultivation can be restricted to definite quantities, and to localities known to be suited to the production of a good leaf. A yield in the vicinity of 2,500 tons can be confidently expected from the area planted in 1937. Local consumption only amounting to 40% of this figure, with no export trade to absorb the balance, can only favour the illicit disposal of the crop and deflate prices for the bona fide grower.

Manufacturing firms are doing everything in their power to improve baling, curing and packing methods; but if promiscuous planting is allowed to proceed, it can only lead to the exploitation of the producer by the merchant.

EXTENSION WORK.

35. In spite of the disturbances there was no definite antagonism to the field staff of the Service and extension work was maintained. Generally speaking, farmers did not willingly let their political feelings interfere with operations, and demonstrational work throughout the country was continued.

The poor harvest precluded any possibility of farmers returning seed which had been issued for repayment in kind or in some instances in cash. The following extension plots in districts were in hand :—

	Number of plots
Rotation plots of 75 dunams	36
Seed farms of 50—500 dunams	23
Plots demonstrating measures for combating *Scythris temperatella*	35
Rotation plots in connection with village schools	21
Chemical fertiliser plots	37
Forage plots — oat and vetch	408
Forage plots (Berseem)	28
Maize for seed	288
Potato variety plots	104

AGRICULTURAL STATIONS.

36. No additional stations have been established during the period under review, but the area of the agricultural section at Farradiya has been extended by a further 200 dunams, and a small area has been allotted at the Sarafand Citrus Station for the purpose of conducting vegetable experiments.

Yields of most winter crops at the stations, while not quite up to standard were considerably in advance of those of neighbouring farmers and returns were almost double those of the preceding year.

ACRE AGRICULTURAL STATION.

37. The selection and propagation of indigenous and imported varieties of seed grain is being continued. Experimental work on irrigation and rotation problems has also been pushed on with. In the vegetable section, attention has been given to the raising of seed and seedlings for distribution, fertiliser and varietal trials, and the introduction of types not commonly grown in the country.

The area under both experimental and main crops totalled 907 dunams; viz. 413 dunams under wheat, 195 dunams under barley, 54 dunams under oats and 245 dunams under various leguminous crops. The latter were badly affected by the early siroccos and were hardly worth reaping.

Comparative Areas and Yields.

Crop and variety	Season 1935/36		Yield per dunam
	Area in dunams and sq. metres	Yield in Kgs.	Kgs.
Wheat			
Juljuli	128	18,800	146.1
Nursi	189	17,753	94
Hurani	95	10,329	108.3
Total	412	46,882	
Barley			
Hirawi	115.032	14,861	129.2
4000	43.945	8,348	189.7
Mariouti	35.101	4,574	130.6
Total	194.078	27,783	
Oats			
Red Texas	58.308	5,410	93.2
Vetch	225.352	3,020	13.4
Jilbana	19	380	20
Total	244.352	3,400	
Maize			
Boesman	98.500	4,820	49.2
Anveld	170	6,420	37.7
Total	268.500	11,240	

Summer field crops sown on the station were restricted to maize. Results, as the table of yields will show were very disappointing.

38. The 1936/37 sowing season commenced with a general rain in November and ploughing and sowing was a race against time to get the work done before the land became water-logged through the continual falls. No ploughing on outlying areas could be done during the summer on account of the unsettled state of the district and it was only by hiring several tractors in early winter that sowing was completed before the land became impossible to work. At the close of the period to which this report refers there are only poor prospects for the harvest from the winter cereals and legumes mainly due to flooding and, in instances, through sowing being held up until mid-January.

Variety Tests.

39. Variety tests were carried out according to the standards laid down. In all 18 varieties of wheat and 21 varieties of barley were under trial.

Rotation Experiments.

40. The rotation experiments were continued according to the six year plan commenced two seasons ago. A new element of investigation has been added viz. the best crop or crops in the rotation to be fertilised.

Though results will be only significant when the entire rotation cycle will be concluded, the following figures are of interest :—

(a) *Yields of Wheat.*

No. of rotation	Preceding crop	Yields per dunam	
		Fertilised	Not fertilised
		Kgs.	Kgs.
1	Hay	81.7	75
2	Maize	102.1	98.5
3	Maize	93.3	74
4	Wheat	37.2	34.4
5	Fallow	140	92.8
6	Fallow	118.8	90.2
8	Maize	60.8	50.4
9	Hay	112.2	89
10	Hay	112.5	121.4
12	Green manure	117.6	74.4
13	Green manure	143.3	135.1

Summarised results:—	Precedent	Fertilised	Not fertilised	%
	Hay	102.4	95.1	+ 8
	Maize	85.4	74.3	+ 15
	Green manure	130.4	104.7	+ 25
	Fallow	129.4	91.5	+ 42

(b) *Yields of Vetch and Oats.*

No. of rotation	Precedent crop	Green forage Yields per dunam	
		Fertilised	Not fertilised
		Kgs.	Kgs.
1	Wheat	1287	1026
2	Wheat	1404	1493
3	Wheat	1169	1271
9	Maize	1443	1459
10	Maize	1916	1861
11	Maize	1243	925
Summarised average results:	After wheat	1286	1263 + 1.8%
	After maize	1534	1415 + 8.4%

The standard fartilisation was :—

For wheat : 12 kgs. superphosphate + 10 kgs. nitrate of soda per dunam.
For vetch and oats : 15 kgs. superphosphate + 5 kgs. nitrate of soda per dunam.

The response to fertilisers was an average increase of 22.5% for wheat and 5.1% for vetch and oats.

Irrigation Experiments.

41. The experiments of the preceding season on medium loam soil were continued and concluded for maize and lucerne.

Lucerne. This crop was found to be extremely drought resistant and withstood, unirrigated, the entire summer drought without suffering; but under these adverse conditions, only one crop was obtained, subsequent growth being fed off. Yields of green fodder were entirely dependent on adequate irrigation.

The water requirements of the lucerne varied with the age of the plant. Until a certain limit of water was reached, yields increased but not proportionally. If only the optimum relation between water and yield is considered the best results were obtained from the following irrigations :—

Once every 8 days (90m³ per dunam) till after the second cut;
Once every 10 days during the rest of the first season;
Once every 12-14 days during the second season.

It was noteworthy that when all the factors conducive to good yields are maintained superior yields are obtained from a given quantity of water. On the other hand, when growing conditions are unfavourable the lucerne has a tendency to waste water, and it becomes uneconomic to endeavour to raise yields by increasing water supply.

Maize. Irrigation experiments were continued and have confirmed the results of the preceding season.

42. Introduction of new Crops.

Lucerne. The following varieties of lucerne were tested at the Station :—

Variety	Origin	Yield in % of Hairy Peruvian
Hairy Peruvian	California	100
Haricive Vekaletine	Turkey	79
Hunter River	Australia	77.2
Provence	France	61.6
Thuringer	Germany	86.2
Grimm's	California	84.5
Ewiger Hungar	Germany	73.3
Poitou	France	100

43. Among other introductions are leucina glauca, grey tares, purple vetch, forage carrot, yellow flowered melilot, various varieties of mustard, sorghums and cowpeas. Of the above, the grey tares and purple vetch gave very heavy top growth but failed to set any grain. The leucina glauca promises well, but forage carrot has not shown satisfactory results. The cowpeas are most promising and in addition to the extensive raising of seed, investigations to include irrigation and dry cultivation, rates of seeding in mixtures, varietal trials and yielding capacity as green fodder will be tried.

44. In the vegetable section every endeavour is being made to produce standardised and acclimatised strains suited to local conditions. It is hoped in the near future to be able to supply commercial growers with seed, in addition to gratis issues to market gardeners. The section, situated as it is in the centre of a district where intensive production is making very rapid strides, is of the greatest benefit to he population who take full advantage of the opportunities offered. Results to date while not by any means completely definite are significant. Summarised, the outstanding varieties both for yield quality and adaptability to conditions are as under :—

Cauliflowers. Of forty-two varieties, under trial, Glory of Mechelen, Six Weeks, Recordé Saxe, New Year, Metropol and Dwarf Erfurt show up well.

Broccoli. Very unsatisfactory results were obtained from all varieties sown.

Cabbage. Thirty-two varieties are under trial. Brunswick, June Giant and Golden Acre show to advantage but cannot excel "Maincrop". In the Savoy section, Perfection Drumhead still retains first place. Wisconsin Hollander No. 8 is very drought resistant; among the red varieties, Copenhagen Early and Erfurt are confirming results of past years.

Tomato. Forty-seven varieties under test annually show that Best of All, Burwood Prize, La Mamande, Princess of Wales, Scarlet Dawn, and Stofferts Immune are heavy yielders, and the demand for seedlings is appreciable.

Egg Plants. Four varieties were under observation. Long Purple and Black Queen continue to give the best results.

Pepper. A very valuable crop in the country; 19 varieites have been under test. There is very little to choose between them but Chinese Giant, Ruby King, Cayenne and Monstrous seem to be best suited to the country.

Potatoes. Eight varieties have been under trial in the variety section. Fertiliser and times of planting tests were carried out on similar varieties. "Up-to-Date" in all sections has given heavy yields and significant results. "Majestic" and "Duke of York" come next in order of priority.

Cucumbers. Of 17 varieties tried, only local types showed any degree of success, Damascus White yielding prolifically.

Vegetable Marrow. Of 12 varieties, White Bush Scallop, and Black Zucchini gave significant results.

Melons. Of the four varieties sown, Kleckley Sweets and Tom Watson have done well under local conditions.

Lettuce. Of the 25 varieties sown, Winter Crop, Austin Standard, Webbs Wonderful, New York and Harrison Heartwell have shown their suitability for several years past. For a summer lettuce, "Spring" is the only variety worth while continuing to sow from those tried.

Onion. Twenty-one varieties are under trial but none have shown superiority over Ailsa Craig and Brown Spanish.

Radish. A very popular vegetable in the country, eight varieties are under trial. A large root is more popular than the small English table sorts. Black Spanish and Long White are most favoured.

Dwarf Beans. Of 25 varieties under trial, Schlossperle has given most satisfactory results, and is very widely distributed over the country.

Lima Beans. Ten varieties have been under test and Henderson's Bush is showing to advantage.

Carrot. Four outstandingly good varieties are Red Intermediate, St. Vallery, Long Red and Nantaise.

Beet. Egyptian Turnip Rooted continues to show its superiority over eight varieties under trial.

Peas. Of fifteen varieties tried out in the past years only Abundance, Yorkshire Hero, Telephone, Quite Content and Ne Plus Ultra have been retained for seed breeding purposes.

Other vegetables in the section comprise asparagus, celery and rhubarb.

From this station, 247,000 seedlings and 110 kgs. of seed were distributed.

The annual allocation for the whole station is £P.1,700 of which £P.1,693 was spent. Revenue for the period was £P.99 from vegetables and £P.423 from grain.

'EIN 'ARRUB STATION.

45. In order to secure some uniformity of soil two thirds of the area had been sown with a leguminous crop in the winter of 1935/36 with the remainder under a cultivated summer and winter fallow for the ensuing summer crop.

The repeated cultivation given showed the efficacy of the treatment in the dry season, and yields from the various legumes were fairly good and at least 50% in excess of the surrounding farms. The summer crop of durra and cucurbitaceous vegetables gave successful returns. During the year a good deal of terracing has been done to stop soil erosion and flooding, but a considerable amount of work is necessary before the area will be fit for a regular layout. The cropping plan for the present season consists of wheat 40 dunams. barley 15 dunams, hay 10 dunams and leguminous crop covering 47 dunams with 2 dunams set aside for varieties.

A small section is reserved for potato and tomato plots mainly featuring varietal trials.

SARAFAND STATION.

Vegetable Extension.

46. At the citrus station of Sarafand a small area of 3 dunams is allotted exclusively as a vegetable section. The plot is laid out for rotational, fertiliser, varietal and times of planting experiments with a section for the raising of seedlings for distribution. 36,000 seedlings were distributed.

An overhead irrigation system has been installed.

A further area now occupied by the poultry and beekeeping section will be added during the coming season.

MAJDAL STATION.

47. Situated in the semi-arid belt of the Southern District, agricultural activities carried out at the station both in the general farming section and the area set aside for intensive work on forage and vegetables are confined to methods likely to be of benefit to the surrounding farmers. Increasing interest on the part of farmers of the neighbourhood is noted.

Summer crops sown over an area of 105 dunams included durra, maize, sesame and cucurbitaceous crops, and all germinated satisfactorily. Yields were however very poor from all except the melons.

The harvest in 1936 of winter cereals and leguminous crops was much better than was expected, and were appreciably higher than any in the neighbourhood. The barley crop was in general much in advance of the wheat and gave an average yield of 135 kilogrammes per dunam as compared with only 65 for the wheat. The hay crop realised nine and a half tons from 29 dunams or about 1½ tons per acre. The second year's trials of Chile nitrate of soda put down gave significant results and will be continued for the third time. The potato field of 25 dunams in No. 1 farm under the rotation scheme embracing this crop yielded satisfactorily.

For the present season the cropping plan of the main fields includes 132 dunams under wheat; 90 dunams under barley; 30 dunams under hay crop; 20 dunams under potatoes with 150 dunams set aside for summer crops. From conclusive results obtained in the past season, only one variety of wheat and one of barley are sown in the main fields. Comparatively well distributed rains have assured a good harvest at the station.

In the variety section divided into plots of 80 sq. meters, 25 varieties of wheat, 19 of barley and six of oats are under observation in randomised blocks.

In the grass section 25 varieties are under observation both irrigated and rain grown.

In the forage section 6 varieties of lucerne are under test for seed and green forage production, with Hairy Peruvian as a standard. Broadleaf Giant Upright has so far proved its superiority.

In the maize section 9 varieties are under trial but from records of the past three years, it can be conclusively stated that no results of any economic importance can be reaped from rain grown crops.

In the vegetable section interesting results have been obtained from varietal, fertiliser, pruning (tomatoes) and times of planting experiments. During the period under review 343,000 seedlings were distributed to local market gardeners.

The allocation for the station was £P.600 of which £P.592 was expended. Revenue amounted to £P.161 from grain and vegetable sales.

FARRADIYA STATION.

48. Late in the year, the area of the agricultural section of the station was increased by a further 200 dunams of plain land of a deep red loam soil. It was not possible to clear the land and sow a winter crop. The area was tractor ploughed to remove shrub growth, and sown with a spring crop of chick-peas and summer crops of durra after being ring fenced.

The poor season which was experienced over the greater part of the country was happily not extended to the region in which the station is situated. Rains though light were comparatively well distributed as regards the needs of the winter crops, and yields were prolific. The wheat crop while not quite up to standard averaged 85 kgs. per dunam. The barley crop, generally much better than the wheat throughout the country, gave a prolific return of 200 kgs. per dunam and the oat and vetch mixture yielded $\frac{3}{4}$ ton per dunam of dry hay. Returns for leguminous crops were correspondingly good but the summer crops of durra, maize and sesame were a complete failure.

The new light threshing machine purchased from Barclay Ross and Hutchinson proved a success and put out a fine sample of tibn in addition to a well cleaned grain. The cropping plan for the current season includes 30 dunams under wheat, 20 dunams under barley, 7 dunams under oats, 20 dunams under hay crop, and 30 dunams under legumes. In the variety section, 16 varieties of wheats and 14 of barley are under trial.

Sowing was completed by the first week of January under rather unfavourable conditions, but at the close of the period to which this report refers, cereal and leguminous crops showed every prospect of a heavy yield.

The allocation for the station is £P.400 of which £P.393 were spent during the financial year.

JERICHO STATION.

49. Situated some 1200 feet below sea level and dependant for water entirely on supply from two springs, intense heat and the dryness of the climate render the production of the majority of crops only possible over the period September to May. Though abnormally hot in summer, the climate can in no way be termed a tropical one. The station is in the centre of the small irrigated belt and serves both as a medium for the collection of data and as a guide to local cultivation.

The production of seedlings, the testing of times of planting, fertiliser trials on vegetables, systems of pruning of tomatoes, and varietal work take precedence over cereal and leguminous crop production.

Only ten dunams are allotted to cereals and six dunams to legumes and forage crops. Yields of the above are annually very prolific, crops of 30 bushels per acre of wheat and up to 40 bushels of barley being the rule rather than the exception. The yields are distributed to local farmers after being graded.

In the vegetable section, tomatoes, potatoes, egg plants, pepper, cauliflower, Brussels sprouts, cabbage, lettuce, cucurbitaceous vegetables, dwarf and climbing beans, peas, broad beans, asparagus, carrot, onion, beet, globe and Jerusalem artichoke, sweet potatoes and garlic are under the various tests enumerated above. Yields are sold on the local market.

From the station, 87,000 seedlings were distributed to market gardeners.

The allocation for the station is £P.400 and expenditure during the financial year was £P.364 with revenue amounting to £P.159.

BEISAN STATION.

50. Of all stations the most unsatisfactory results were returned from here owing to the generally unfavourable season. In addition, a portion of the crops were burned and a mule shot by rioters.

The crops in the experimental fields were fortunately not interfered with. Experimental work embraces times of planting, duty of water, time of irrigation, rotation and fertiliser trials.

Results from these plots were significant and yields were heavy. One more season's work is necessary before they can be published and disseminated to the farming public.

Main Fields. Very poor returns from all winter cereal and leguminous crops were recorded due mainly to the inclement climatic conditions; only $1\frac{1}{2}$ tons of wheat and 1 ton of barley being obtained. Only from the variety fields, forage section, and summer crops, were good returns reaped.

In the maize fields moderately good yields were harvested. Boesman and Hickory King giving prolific yields of 300 and 318 kgs. per dunam respectively. In the forage crop section, heavy yields averaging 5 tons per dunam were lifted from mangels in a rotation experiment. Lucerne varietal tests carried out show that Hairy Peruvian is suited to the Jordan belt.

In the vegetable section, tomatoes, egg plants, pepper, and potatoes are given precedence due to climatic conditions. Due to the prevalence of siroccos in addition to the disturbances, practically the whole crop was damaged. Varietal and fertiliser tests, with pruning systems as regards tomatoes are carried out.

During the season 400,000 seedlings were distributed to local market gardeners. The cropping plan for the present season in the main fields covers 29 dunams under wheat, 40 dunams under barley, 50 dunams under oats, and 42 dunams under leguminous crops. In the variety section, 18 varieties of wheat, and 14 of barley are under trial.

The allocation for the station is £P.600 of which £P.586 was expended. Revenue amounted to £P.80.

G. G. MASSON.
Chief Agricultural Officer.

REPORT OF THE VETERINARY SERVICE
FOR THE YEAR ENDED 31st MARCH, 1937.

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REPORT OF THE VETERINARY SERVICE
FOR THE YEAR ENDED 31st MARCH, 1937.
BY THE
CHIEF VETERINARY OFFICER.

I. INTRODUCTION.

This report covers the financial year commencing the 1st April, 1936, and ending the 31st March, 1937.

2. The condition of live stock throughout the year was, in general, good. The rainfall in the spring months produced a sufficient growth of natural feed throughout the country with the exception of Beersheba district and the eastern areas of both Northern and Southern Palestine where there was a scarcity of natural pasturage which resulted from hot easterly winds in the latter part of the spring of 1936. There was also a lack of stubble grazing in certain areas caused by the failure of winter and summer crops.

Due to the lateness of rainfall (the full rains fell towards the end of November), there was little or no vegetation available for grazing until late in December. Due to under-nourishment and severe winter conditions, abortions, relapses of tick fever and heavy infestation with stomach worms occurred causing heavy mortality among sheep and goats throughout the country and a very considerable decrease in the number of camels, particularly those owned by the semi-nomadic tribes in Beersheba area.

Natural pasturage improved in February and there is every indication that the winter and summer crops will be good so that natural feed for live stock should be available during the early summer months, when stubble grazing should meet requirements.

3. The year has been a difficult one in which to carry out field work due to the disturbed state of the country during the summer months, but despite this fact good progress has been made with animal husbandry.

4. The report of the Veterinary Pathologist on the work conducted at the Government Veterinary Laboratory during the year is appended as Annexure 'A'. The activities of the Stock Farm, Acre, are reported on by the Manager in Annexure 'B', and the report of the Senior Poultry and Beekeeping Officer on the activities of the Poultry and Bee Section is attached as Annexure 'C'.

II. STAFF.

ESTABLISHMENT.

5. With the exception of two new techincal appointments made during the year, the staff of the Veterinary Branch remained unchanged and consisted of the officers mentioned in the report for the preceding year.

NEW APPOINTMENTS.

6. Mr. T. Bell, B. Sc. (Agric.), A.I.C.T.A. (Trinidad), was appointed in November as Assistant to the Manager of the Stock Farm and Agricultural Station at Acre.

Towards the end of the year a Poultry and Bee Instructor was appointed for Beersheba-Gaza area to meet the demands of fallaheen for advice and guidance in improved methods of hatching, rearing and feeding of poultry, the establishment and management of apiaries, and the development of the poultry and bee industries in such area in general.

TRAINING OF OFFICERS.

7. Mr. M. Shapiro, Stockman, Government Stock Farm, Acre, who is in charge of Karakul cross breeding experiments, was sent to Europe towards the end of July for instruction in the breeding of Karakul sheep and in the modern methods of pelt treatment. He underwent a course of instruction of seven weeks' duration at Gross-Ullersdorf, Czechoslovakia, at the private Karakul farm of Prof. Adametz, and gained considerable knowledge and experience which have proved to be very helpful to him in carrying out his work at the Stock Farm.

TRANSFERS.

8. An Assistant Veterinary Officer was transferred from Gaza to Safad and the Sub-District of Safad, which was previously under the charge of a Veterinary Officer, was attached to Tiberias Veterinary Area.

The Veterinary Officer previously stationed at Safad was transferred to Gaza, and Gaza, Beersheba and Majdal Sub-Districts, previously attached to Jaffa Veterinary Area, were placed in his charge as a separate unit.

In view of the development of Tulkarm Sub-District, an Assistant Veterinary Officer was posted at Nathanya in charge of that Sub-District under the direction of the Veterinary Officer stationed at Nablus.

The Poultry Disease Specialist stationed at Affula was transferred in July, 1936, to Haifa, as it was found that it was easier for him to perform his duties in the Northern District with his headquarters at Haifa.

LEAVE

9. The Veterinary Pathologist, Assistant Veterinary Pathologist and Veterinary Officer, Jerusalem, were absent on long vacation leave in Europe during the period under review. Other officers were granted varying short periods of local leave.

10. The Chief Veterinary Officer acted for the Director of Agriculture and Fisheries during his absence on sick leave from the 7th to the 18th of August inclusive.

III. FINANCE—EXPENDITURE AND RECEIPTS.

11. Expenditure during the financial year 1936/37 amounted to £P.43,298, an increase of £P.1,645 over that of the preceding year. Expenditure in respect of the various sections of the Veterinary Branch is set out below :—

Section		Personal Emoluments £P.	Other Charges £P.	Special Expenditure £P.	Total
Administration	35/36	2,283	667	28	2,978
	36/37	2,312	654	—	2,966
Veterinary Field Section	35/36	7,350	3,113	803	11,266
	36/37	7,299	5,214	299	12,812
Veterinary Laboratory	35/36	3,033	1,089	492	4,614
	36/37	3,127	1,159	494	4,780
Animal Quarantine Section	35/36	3,761	1,285	174	5,220
	36/37	5,307	1,230	40	6,577
Stock Farm Section	35/36	3,005	4,336	655	7,996
	36/37	3,447	3,038	411	6,896
Poultry and Bee Section	35/36	3,553	4,468	1,558	9,579
	36/37	4,000	4,588	679	9,267
Total	35/36	22,985	14,958	3,710	41,653
	36/37	25,492	15,883	1,923	43,298

12. Receipts collected during the year totalled £P.25,860, a decrease of £P.4,205 as compared with those of last year. The main heads of receipts are as follows :—

		1935/36 £P.	1936/37 £P.
Animal Quarantine Receipts	—	26,165	22,256
Stock Farm Receipts	—	289	576
Poultry and Bee Section Receipts	—	1,880	2,695
Other Receipts	—	1,731	333

The decrease is due particularly to a drop in imports of cattle, sheep and goats as a result of last year's disturbances and following economic depression. An increase is to be recorded, on the other hand, in the case of Stock Farm and Poultry and Bee Section Receipts.

IV. ANIMAL DISEASES.

13. There was no outbreak of serious epizootic diseases, such as cattle plague, bovine contagious pleuro-pneumonia or haemorrhagic septicaemia, during the year under review.

FOOT-AND-MOUTH DISEASE.

14. Foot-and-mouth disease broke out early in February having been introduced by smuggled cattle from Syria. The disease here is of the mild type and causes little loss among native cattle. This is not the case in dairy herds; when they are attacked, milk yields fall, mouth and foot lesions are severe, and the beasts lose rapidly condition. The measures taken in control of this disease are restricted to local quarantine and artificial transmission of the disease among the stock quarantined.

TICK FEVERS.

15. The losses due to tick-borne diseases in those settlements where cattle are dipped were considerably reduced and the value of regular dipping is now appreciated by dairy farmers. The same applies to sheep and goats but due to the unsettled condition of the country last summer regular dipping of such animals in the nineteen concrete baths erected to date with Government's assistance, could not be conducted.

BOVINE CONTAGIOUS ABORTION.

16. The eradication of bovine contagious abortion from dairy herds is making good progress from year to year, and most of the herds in settlements where cattle breeding is undertaken systematically are now under Government supervision. 20 new herds were added to those already under control during the year. There are now 109 herds comprising 8,116 head of cattle, which are regularly tested. Of these herds, 92 are free from bovine contagious abortion, while in the remaining herds the incidence of the disease is gradually decreasing and the profitability of those herds from which the disease was entirely eradicated has greatly increased.

28,705 blood samples were taken from cattle by Veterinary Officers and tested by the Government Veterinary Laboratory in connection with this work during the year.

In addition, 1,274 tests were conducted by the laboratory at the request of purchasers of cows and fees charged for such tests amounted to £P.103.260 mils.

BOVINE TUBERCULOSIS.

17. In accordance with Government's decision last year, a tuberculin test survey of a percentage of dairy cattle was undertaken to ascertain the present incidence of the disease for comparison with that recorded in 1928.

The percentage incidence according to this survey is 11 whereas in 1928 the percentage incidence was 1.8.

ANTHRAX.

18. Sixty-eight outbreaks of anthrax were reported as compared with forty-eight last year. About 21,000 animals were involved in these outbreaks of which 533 or 2½% died; the remaining animals were vaccinated and further mortality thus prevented.

Protective vaccination of sheep and goats, which practice was attended with remarkable success last year in Jerusalem District, was continued during the first quarter of 1936, and 43,500 animals were vaccinated. This excellent practice, however, could not be furthered owing to the unsettled state of the country.

Annual protective vaccination of dairy and other live stock in a large number of Jewish settlements has been continued. Such work is mainly conducted by the veterinary surgeons of the Ha Haqlait Mutual Cattle Insurance Society.

The incidence of anthrax during the last five years is recorded in Appendix No. 1.

DOURINE.

19. The blood testing of horses in control of dourine was continued and 1,635 animals were tested during the year. Of these, two stallions and forty-two mares proved positive. The two stallions were castrated, twenty of the mares were destroyed and twenty two branded and their use for breeding purposes prohibited.

Forty-one stallions were tested and licensed in accordance with the provisions of the Dourine Rules.

Blood samples of mares selected for breeding to the stallions of the Trans-Jordan Frontier Force submitted by the Senior Veterinary Officer of such Force, were tested for possible infection with Dourine by the Government Veterinary Laboratory.

GLANDERS AND EPIZOOTIC LYMPHANGITIS.

20. Six horses affected with glanders and sixteen with epizootic lymphangitis were detected or reported. The animals were destroyed and their owners compensated for loss sustained in accordance with the provisions of the Animal Diseases Ordinance.

MANGE IN HORSES, MULES, DONKEYS AND CAMELS.

21. The number of animals examined, those found diseased and the number of premises cleansed and disinfected in connection with this disease during the last five years, are set forth in Appendix No. 2.

DISEASES OF SWINE.

22. Swine erysipelas was detected in a consignment of pigs imported from Bulgaria. Imports from such country and others affected with such disease were prohibited. An outbreak of this disease occurred in a German settlement in Haifa Sub-District. 9 piglets died and one was slaughtered and premises disinfected.

SCABIES AND SHEEP AND GOAT POX.

23. Seventeen outbreaks of sheep and goat pox were recorded as compared with thirty seven last year. There were also seventeen outbreaks of scabies in sheep and goats reported.

Suitable measures were adopted to suppress the diseases.

INFECTIOUS PLEURO-PNEUMONIA OF GOATS.

24. This disease occurred in the month of December and spread rapidly throughout the country. The winter was particularly severe and the virus of the disease very virulent. Large numbers of goats and, to a lesser degree, sheep died from this epidemic. An account of the communicability of infectious pleuro-pneumonia of goats to sheep was published in the Journal of Comparative Pathology and Therapeutics by the Veterinary Pathologist.

PARASITIC GASTRO-ENTERITIS IN SHEEP AND GOATS.

25. The disease caused by the presence of worms in the stomach was responsible for heavy losses of sheep and goats (in sheep particularly) in Beersheba Sub-District.

The addition of nicotine sulphate to the copper sulphate solution used for the regular drenching of animals gave excellent results and the combination will in future be used.

RABIES IN ANIMALS.

26. There were reported 122 cases of rabies of which 42 were confirmed by the Government Central Laboratories. 17,174 dogs, 2,103 cats and 653 jackals and others were destroyed during the year in towns and villages, with the assistance of the Police and local authorities.

587 suspected biting animals were placed under observation and of these 10 were found to be rabid.

The incidence of rabies and the number of animals destroyed during the last five years are shown in Appendices Nos. 3 and 4.

DISEASES OF POULTRY.

27. The general health of poultry during the year may be said to have been satisfactory. Disease has not hindered the progress of the poultry industry although heavy mortality among chicks due to undiagnosed causes occurred coupled with outbreaks of cholera, typhoid, pox, roup, spirochaetosis and other diseases causing varying degrees of mortality among the flocks attacked.

The heavy mortality among chicks and pullets, which so far has been found not to be due to infectious disease, is causing grave concern. A steady rise in mortality of these birds has occurred despite better methods of prevention, control and eradication of infectious diseases and parasites. It is suggested that the cause is due either to the influence of heredity or faulty dietary.

The two Poultry Disease Specialists are overworked and in view of the steady expansion of the poultry industry the appointment of additional officers will become necessary. Apart from dealing with disease, these officers have paid frequent visits to farms connected with the poultry premium scheme, given several lectures at different centres to poultry farmers on various poultry diseases, and advised farmers on the feeding and management of poultry.

FOWL POX.

28. Fowl pox occurred throughout the year but was more prevalent towards the end of the summer. In the case of flocks which had been vaccinated previously, the infection was mild, but in unvaccinated flocks the disease assumed a severe form causing a definite fall in egg production and slight mortality.

Vaccines from various sources are used by farmers to protect their flocks, the Government Veterinary Laboratory's pigeon pox virus vaccine being principally used.

FOWL PARALYSIS.

29. The number of typical cases of fowl paralysis increased considerably during the year. Fowls from three to twelve months of age were observed to be affected. A circular letter was issued to all poultry farmers explaining the nature of the disease and stressing the fact that eggs of flocks affected or suspected to be affected with the disease should not be used for hatching purposes.

UNDIAGNOSED VIRUS DISEASE.

30. Towards the end of March a fatal disease, apparently due to a virus, occurred at Tel Adashim, Nazareth Sub-District. It was stated that no newly purchased birds had been introduced. Mortality reached 98% on one farm. As soon as the disease spread to adjacent flocks the whole were immediately slaughtered off and thorough cleansing and disinfection of the premises undertaken. Quarantine measures were imposed and it is trusted that the spread of the disease will thus be checked.

LEUKEMIA.

31. Many cases of this disease were observed on post-mortem examination.

PARASITES.

32. External parasites, such as lice, bugs, mites and ticks, were frequently met with in flocks. Poultry farmers were advised to use nicotine sulphate 40% (black leaf), Carbolineum, used engine oil, kerosene and the live flame of a painters' lamp in control and eradication of such parasites.

Internal parasites are a source of much loss to some farmers. Improvement in hygiene and sanitation in control of internal parasites is stressed on every affected farm. Vermifuges are advised and their administration demonstrated.

FOWL TYPHOID.

33. Only a few outbreaks of fowl typhoid were reported. The Government Veterinary Laboratory vaccine gave excellent results in controlling such outbreaks, coupled with the destruction of badly affected birds, disposal of carcases by fire and cleaning and disinfection of poultry houses and yards.

SPIROCHAETOSIS.

34. Several outbreaks of spirochaetosis were reported. "Spirocid" and Neosalvarsan continued to give good results when administered early. The importance of eradicating the fowl tick was explained to farmers and the introduction of tick traps and the use of live flame and Carbolineum stressed.

CORYZA.

35. This disease causes quite appreciable losses. Treatment is of no great value and the importance of prevention was stressed. On four farms which have suffered heavily from coryza in the past, a definite programme of prevention was planned and carried out. The plan consisted of raising young growing stock completely separated from old stock birds and thus young stock entirely free of this disease were raised. Further, several young cockerels were placed with old stock birds as controls and all became affected. This method of control of the disease will be extended and introduced to other poultry farms.

COCCIDIOSIS.

36. This disease is the cause of greater losses due to disease than any other to the modern poultry farmer and despite measures taken the incidence of the disease has not fallen. At every opportunity the importance of good sanitation in the control and prevention of coccidiosis is stressed. Poultry farmers are advised to (a) hatch early, (b) rear small numbers of chicks under one brooder, (c) change floor covering daily, (d) use wire-netted floor sun perches, (e) separate sexes as soon as possible, and (f) feed rations rich in milk.

It is trusted that with the proper application of the above measures a definite reduction in the incidence of the disease will be achieved.

BEE DISEASES.

37. Inspection of all hives is made periodically. Only a few infected colonies of bees were found, these were destroyed and the hives disinfected. Foul brood is well in hand and the spread controlled.

Advice was given, as in previous years, to beekeepers by bee inspectors on wax moth destruction and other bee diseases' control, and methods of treatment of affected colonies were explained to them.

V. QUARANTINE.

GENERAL.

38. The Quarantine Section of the Veterinary Branch was very active as usual and, though the number of animals imported decreased considerably, quarantine personnel were fully engaged in patrolling frontiers to prevent smuggling and routine work at the fourteen border animal quarantine stations and at Haifa Port Animal Quarantine Station which dealt with over a third of all imported stock.

DETAILS OF IMPORTS.

39. There has been a considerable decrease in the number of animals imported into Palestine as a result of the disturbances and subsequent economic depression. 320,000 animals were imported as compared with 520,000 during the preceding year, a decrease of 200,000 of which 191,000 were sheep and goats.

The 320,000 animals imported comprised 205,000 sheep, 61,000 goats, 34,000 cattle, 21,000 camels, 790 horses, 580 mules, 350 donkeys and 220 pigs.

Quarantine revenue totalled £P.21.632.

Details of the number and kinds of animals imported through quarantine stations and quarantine fees collected are set out in Appendices Nos. 5 & 6.

IMPORTS OF SLAUGHTER CATTLE.

40. The number of cattle imported for slaughter, the majority through Haifa Port Animal Quarantine Station, remained almost stationary. Over two thirds of such cattle were imported from Rumania. Other countries exporting slaughter cattle to Palestine were, in order of importance, Yugoslavia, Syria, Bulgaria, Trans-Jordan and Cyprus.

IMPORTS OF DAIRY CATTLE.

41. The local demand for dairy cattle decreased and 1,014 such cattle only were imported as compared with 2,028 during the preceding year. Of these 385 were introduced from Rumania, 380 from Germany, 166 from Holland and 32 from Switzerland.

All such cattle were tested at Haifa station for tuberculosis and bovine contagious abortion and those found affected were slaughtered, with the exception of the more valuable cows affected with the latter disease which were branded and transferred to herds known to be infected with bovine contagious abortion.

IMPORTS OF POULTRY.

42. A further increase in imports of poultry by sea is to be recorded. 1,835,000 birds were imported as compared with 1,269,000 in the preceding year. On the other hand, imports by land have decreased from 717,000 in 1935/36 to 187,000 in 1936/37. Of the 2,021,600 imported birds, 1,823,500 were from Rumania.

LEGISLATION.

43. During the period under review, rules were published prescribing the conditions under which cattle, sheep, goats, horses, mules and donkeys may be imported from the United States of America, while the conditions of import relating to Iraqi stock were revised.

Owing to the outbreak of foot-and-mouth disease, the importation of cattle by land from Syria, the Lebanon and Trans-Jordan was prohibited in February.

To protect live stock during their conveyance by sea to this country from injury, overcrowding and unnecessary hardship and suffering, rules were published in October. These rules, which are cited as the Animal and Poultry (Sea Transport) Rules, 1936, came into force on the 1st of January, 1937. They are very comprehensive and prescribe, inter alia, the parts of the vessel where animals may be carried, the space to be allowed per animal and bird, the quantity of food and water to be taken on board, and the separation of different classes of animals.

VI. SLAUGHTER HOUSES AND MEAT INSPECTION.

NUMBER OF ANIMALS SLAUGHTERED.

44. The attached table No. 7 indicates a considerable decrease in food animals slaughtered in municipal and local council slaughter houses. It will be observed that 217,000 animals were slaughtered as compared with 366,000 in the preceding year and that the decrease is mainly in sheep and goats. However there has not been actually such a large decrease in food animals consumed in municipal and local council areas as during the disturbances a large number of slaughter houses were not functioning and numerous animals were slaughtered illicitly and without any control.

Of the 217,000 animals slaughtered at 44 slaughter houses during the year, 43,500 were cattle, 123,100 sheep and 48,700 goats.

The numbers and classes of animals slaughtered during the period under review, and a summary for the last five years, are set out in Appendix No. 7.

CONDEMNATIONS.

45. A further increase in the number of cases of bovine tuberculosis detected at slaughter houses is to be recorded. The chief causes of condemnations were, however, as usual, parasitic affections, such as Cysticercus bovis, echinococcosis, distomatosis and strongylosis.

A record of condemnations at the four main slaughter houses is given in Appendix No. 7 A.

VII. VETERINARY SERVICE TO THE PALESTINE POLICE FORCE AND BRITISH TROOPS.

46. Generally speaking, the condition and health of police horses was satisfactory. Of 611 horses and camels on establishment, 21 died, 67 were destroyed and 38 were sold during the period under review. 60 newly enrolled stallions were castrated without any casualties.

47. Police horses are scattered throughout the country at some 100 police stations and outposts and Veterinary Officers have devoted a considerable time to their examination and treatment. 1,463 visits in connection with medical and surgical treatment of police horses were made during the period under review, while 270 horses were examined as to their suitability for enrolment and 132 proposed for casting. Veterinary Officers attended also 228 boards held in connection with purchase and casting of horses.

48. Appendices Nos. 8 and 9 reflect the services rendered by Veterinary Officers and the number of animals which died or were destroyed or sold during the year.

49. The Veterinary Branch is also responsible for the professional attendance to sick and injured army animals on the strength of the British troops in Palestine. Weekly inspections of all such animals, distributed in four centres, were conducted by Veterinary Officers apart from special attendance as and when necessary.

VIII. ANIMAL HUSBANDRY.

ENUMERATION OF LIVE STOCK.

50. According to the last animal enumeration made in July, 1934, there were in the country 131,000 cattle, 188,000 sheep, 380,000 goats, 4,500 buffaloes, 15,600 horses, 7,000 mules, 75,000 donkeys, 32,000 camels and 1,500,000 head of poultry. The enumeration of animals is made every two years but, due to the prevailing unsettled conditions of the country, it was impossible to carry it out when due, namely in July, 1936.

TRADE IN LIVE STOCK, ETC.

51. The value of live stock, meat and meat products and dairy produce imported into Palestine during the year 1936 was £P.1,543,000, an increase of £P.197,000 over 1935. The main increase is in respect of eggs (£P.190,081 in 1936 and £P.138,209 in 1935). Details are given below for the years 1935 and 1936.

Category	1935 Imports	1936 Imports
	£P.	£P.
Slaughter stock and dairy cattle	588,249	631,068
Poultry	133,479	161,741
Meat and meat products	62,736	59,956
Dairy produce	846,311	868,228
Eggs	138,209	190,081

An increase is also to be recorded in the value of exported animal products which amounted to £P.140,524 in 1936 (as compared with £P.79,000 in 1935) of which the value of hides, skins and animal casings was £P.126,457.

WOOL.

52. Last season's estimated wool crop of local sheep was 495,000 kgs., as compared with 623,000 kgs. in the preceding year. The major part of the wool, which is of a coarse, carpet-making variety, is utilised locally.

ACRE STOCK FARM.

53. The condition of health of all stock was quite satisfactory with the exception of sheep and goats. 102 sheep and goats have died while in other animals wastage was negligible. The establishment of breeding stock was further increased by eight Karakul ewes purchased in Rumania and the present strength numbers 1,052 head of stock.

DISTRIBUTION OF GOVERNMENT BULLS.

54. 31 Lebanese bulls were distributed on loan to selected villages. The demands for bulls of this breed are great and cannot be satisfied. The progeny of these bulls, which have served local cows in previous years, is very satisfactory, the young animals being active, healthy and of good conformation.

Four Kerry bulls were stationed in districts and were well patronised.

The Guernsey bulls were lent to the Jewish Cattle Breeders Association for use in different settlements. The settlers are pleased with the first calves but the quality of the resulting progeny can be ascertained only after the elapse of several years.

GOVERNMENT'S PREMIUM SCHEME.

55. 73 bulls and 33 jackasses were selected in different villages and their owners granted premiums in return for allowing their bulls and jackasses to serve all cows and donkey-mares in the respective villages; all scrub bulls and jackasses in such villages were sterilised.

GOATS — DAMASCUS BREED.

56. 22 Damascus male goats were lent to villages for crossing with the local breed of goat. The resultant progeny show a marked improvement.

CASTRATION OF VILLAGE LIVE STOCK.

57. The castration of scrub male stock was continued. Over 2,500 animals were sterilised, including 1,151, bulls and 541 donkeys.

POULTRY INDUSTRY.

58. The demand for table poultry and eggs is increasing from year to year and modern poultry farming has made great strides during the period under review. Poultry farming in villages, however, due to the disturbances, did not develop as it ought to in view of the increasing local demands.

59. Government poultry stations and apiaries have developed satisfactorily up to the time of the outbreak of the disturbances by which they were adversely affected. It was found necessary to close down four poultry stations and the activities in others were curtailed. 56,700 hatching eggs, 8,850 day-old chicks, 1,650 four to six-weeks-old chicks, 2,550 cockerels, 2,060 pullets and 450 bee swarms were sold during the period under review. The demand for breeding stock is great and exceeds by far the number that can be supplied by Government stations.

IX. GENERAL.

60. Rules made under the Animal Diseases Ordinance during the year are shown in Appendix No. 10.

61. 117 persons were prosecuted by Veterinary Officers for different contraventions of the provisions of the Animal Diseases Ordinance and Rules made thereunder. Of these, 50 contraventions were in connection with illicit importation of animals and 59 with the sale of meat which has not been inspected.

62. 19 cases of suspected malicious poisoning were dealt with by officers of the Veterinary Service.

63. Eight persons, graduates of recognised universities or veterinary high schools were granted licences to practise veterinary surgery and medicine in Palestine. There are now 86 registered veterinary surgeons in the country.

64. Since Government commenced to publish an Agricultural Supplement to the Palestine Gazette, the Veterinary Branch contributes periodically leading articles on different subjects of interest to the local agriculturists. Broadcasts are also made on veterinary and animal husbandry subjects monthly.

65. In conclusion, I wish to place on record my appreciation of the loyalty and services rendered by all members of the staff of the Veterinary Branch and to express my thanks to officers of the District Administration, Palestine Police Force and other Government departments for their co-operation and assistance.

J. M. SMITH.
Chief Veterinary Officer.

ANNEXURE 'A'

GOVERNMENT VETERINARY LABORATORY.

REPORT

BY THE VETERINARY PATHOLOGIST.

I. GENERAL.

During the present year the laboratory moved to more spacious accommodation the benefit of which has been very apparent. The stable accommodation, however, has not been similarly expanded and the restricted space still closes many avenues of both routine work and research. Owing to the development of dairy farming, the future situation in regard to laboratory work is becoming more clear. Palestine has now all the common cattle diseases that occur throughout Europe and, in addition, either already has or is exposed to many tropical and sub-tropical diseases. This situation does not, I think, occur in any other Colony and moreover the fact that dairy and sheep farming is in a state of rapid evolution calls for greater laboratory help than in those countries in which progress is slower or conditions already stabilised.

2. The Veterinary Pathologist returned from 4½ months vacation leave on 14th August, 1936, and the Assistant Veterinary Pathologist proceeded on 4½ months vacation leave in November. The locally employed staff now numbers 16 workers.

3. In spite of disturbed conditions, work proceeded evenly throughout the year and in many cases an actual increase occurred. The testing of Arab horses for dourine has, however, for a time greatly diminished. A steady increase has taken place in the number of herds accepted for regular testing in connection with the control and eradication of bovine contagious abortion. The total number of herds now under test is 109. It is estimated that over 60% of the dairy cattle are now maintained free of this disease.

4. A good deal of research has been carried out or is still in progress. Infectious pleuro-pneumonia of goats which caused heavy mortality during the winter has been proved to be due to a filterable virus, and for the first time has been shown to be communicable to sheep.

5. The following publications have been forwarded for publication in the Journal of Comparative Pathology and Therapeutics:—

(a) Notes on a Minor Outbreak of Cell Inclusion Disease.

(b) Infectious Pleuro-pneumonia of Goats in Palestine—Communicability to Sheep.

II. ROUTINE.

6. A total of 34,417 specimens (not including slides and smears) have been received at the laboratory for examination in connection with routine diagnosis during the year. Sub-inoculations made in connection with diagnosis have been performed on:—

Guinea pigs	89
Rabbits	134
Rats	349
Fowls	127
Pigeons	381
Sheep	53
Goats	13
Mice	36

7. *Microscopical examinations.* 3,153 slides from 1,429 field cases have been stained and microscopically examined. Appendix No. 11 shows the results of these examinations.

8. *Contagious Bovine Abortion.* 28,705 agglutination tests of the blood of cattle for contagious bovine abortion have been performed in connection with control schemes. Of these 216, have proved positive and 117 doubtful. 1,274 tests for private practitioners on behalf of persons wishing to purchase cattle free from the disease have been carried out. 914 tests of imported animals in quarantine have also been performed with positive results in 15 cases and 7 doubtful. 3,364 agglutination re-tests have been performed in connection with the foregoing. Complement fixation tests are also applied when considered necessary and especially in the case of doubtful reactors. 403 of such tests have been performed during the year. Reactions which are finally considered doubtful have comprised only 0.45% of the total number of tests.

9. *Dourine.* 2,201 animals have been subjected to complement fixation tests for dourine. Of these, 58 proved positive, i.e. 2.63%. All sera are, however, retested in order that there should be no possibility of technical error and the total number of tests have therefore amounted to 4,402.

10. *Anthrax.* Material from 271 suspected cases of anthrax have been received of which 135 proved positive. This has entailed the microscopic examination of 399 slides and 191 precipitin tests of spleen pulp. Of the latter 102 proved positive.

11. *Mastitis.* 139 samples of milk from cows, sheep and goats have been examined with the following results :—

Tuberculosis	1
Streptococci	19
Streptococci agalactiae	5
B. pyogenes	2
Staphylococci	10
Negative	102
Total	139

12. *Epizootic Lymphangitis.* 14 suspected cases of epizootic lymphangitis have been confirmed by microscopical examination.

13. *Fowl Typhoid.* The routine examination consists of cultural examination of femurs and serological tests of growths obtained. From 161 femurs received 10 proved positive. A polyvalent vaccine is prepared and maintained for issue.

14. *Fowl Cholera.* 36 blood films, 74 femurs and 26 fowls have been received from suspected cases of fowl cholera and have been submitted to microscopical, cultural and other examination. 46 of these proved positive.

15. *Foul Brood of Bees.* Routine microscopic and cultural examinations of 16 specimens of comb have been carried out with the following results :—

European foul brood	10
American foul brood	6

16. *Fowl Pox and Diphtheria.* This disease is as in most countries indigenous. There is now a great demand for pigeon pox vaccine, 131,675 doses having been issued this year.

17. *Johne's Disease of Cattle.* Four strongly positive cases of Johne's disease have been confirmed.

18. *Pulpy Kidney Disease (Entero-toxaemia of sheep).* Outbreaks of this disease occurred in 5 flocks. A vaccine prepared by the laboratory was extensively used in all the above outbreaks and 21,150 c.c. were issued. A strongly potent anti-serum has also been prepared and is available for issue.

19. *Vaccines and Sera.* The following vaccines and anti-sera have been prepared :—

Pigeon Pox Vaccine	111,600 doses
Fowl Typhoid Vaccine	18,450 "
Pulpy Kidney Disease Vaccine	19,630 cc.
Fowl Cholera Serum	13,550 cc.
Various anti-sera	

III. INVESTIGATION AND RESEARCH.

20. *Tick Fevers in Cattle.* Investigation of this disease and the possibilities of pre-immunisation have been continued as usual, and our knowledge of the disease and its effects considerably added to. Some Stud Farm calves have been inoculated preparatory to distribution to tick infected areas. There is as yet, however, no reason to alter our present view that the ideal method of controlling this disease in dairy cattle consists of adequate and regular dipping.

21. *Complement Fixation Tests for the Diagnosis of Johne's Disease.* As this disease is of more or less recent introduction to Palestine, the preparation of Johnin is not yet indicated. The use of complement fixation tests has shown considerable promise, and research on a laboratory method of identification of type factors to differentiate from tuberculosis, have been carried out and published. Further work on experimentally infected calves is required.

22. *Infectious Pneumonia of Goats.* This disease was investigated this winter and found to be due to a virus. It was also shown to be communicable to sheep with large mortality under field conditions, a fact which has not been previously described elsewhere.

23. *Pulpy Kidney Disease (Entero-toxaemia) of Sheep and Goats.* Some research has been carried out during the year and some important facts elucidated. As is not uncommon, experiments on this disease as it exists in Palestine have not coincided with those carried out elsewhere, and doubtless a vice versa state of affairs would exist.

24. *Bacillus coli Infection in Chicks.* A severe mortality in chicks from one day to one month old has occurred in one district and has been found to be due to B. coli (B. neapolitanum). Further work is being carried out. Bacillary white diarrhoea has as yet not been discovered in Palestine.

25. Other investigation has been as follows :—

(a) *Actinobacillus lignieresi.* Some new features of this organism, which was obtained from a case of pneumonia in a cow, are being investigated.

(b) *Smooth strains of Br. melitensis.* A smooth strain of this organism has been obtained and has retained its characters for over three years.

(c) *Virus Diseases of Fowls.* Varying types of virus diseases have been encountered and are awaiting further investigation.

(d) *Anti-complementary Factor.* Studies on anti-complementary factor in connection with the complement fixation test have been carried out.

S. J. GILBERT
Veterinary Pathologist.

ANNEXURE 'B'

GOVERNMENT STOCK FARM.

REPORT BY THE MANAGER.

The Stock Farm has during the last year further increased and the work done is highly appreciated by stock owners.

2. *Personnel.* The staff has been increased by the appointment of an Assistant Manager, who has taken over all stock breeding problems, and will act for the Manager when absent on leave.

3. *Prison Labour.* In addition to the Farm Reformatory Camp containing 50 boys, an additional Farm Labour Camp to accommodate 200 prisoners has been constructed. As far as is possible, it is proposed that prisoners of the small farmer class, will pass through this camp before release, so that they will have an opportunity of working on the farm, and seeing modern methods of agriculture being carried out.

4. *Farm Lands and Crops.* No additional areas have been acquired or leased due to the difficulties of land ownership. Crops on the whole have been satisfactory. A larger area is to be put under irrigation as early as possible as dry farming is too precarious with a large number of live stock under Palestine weather conditions.

5. *Buildings.* Quarters for the Assistant Manager and four Station Superintendents have been constructed, as it has proved unsatisfactory for the Section Officers to live 15 kilometres from the Farm.

6. *Strength.* The present strength of the Farm is 1,052 head of stock, a decrease of 31 over last year. The slight decrease is due to the sale of bulls, goats and pigs. This figure is made up as follows :—

Bulls	48
Cows	40
Bull calves	14
Heifer calves	13
Sheep	464
Goats	387
Pigs	34
Horses	14
Donkeys	27
Working animals	11

The details as to sex and breed together with number purchased and born are shown in Appendices Nos.12 and 13.

7. *Health and Mortality.* The general health of the stock has been better than last year. The district is not ideal for sheep and goats, and deaths have been therefore higher than they should otherwise be.

The following animals died or were destroyed :—

Sheep	30
Goats	72
Donkey foals	1
Piglets	7
Kerry bulls	1
Calves	1

8. *Sales.* The following animals were sold :—

Boaz bulls	8
Boaz cows	2
Lebanese bulls	13
Kerry bulls	1
Ewes	47
Rams	46
Lambs	24
Goats, male	24
Goats, female	31
Kids	17
Jackasses	3
Piglets and pigs	72
Working horses	1
Total	289

9. *Distribution of Bulls.* During the 1936/37 breeding season the following bulls were given out on loan free of charge :—

Lebanese	31
Kerry	4
Guernsey	2

10. Veterinary Officers, as in the past, have taken charge of breeding operations in their respective areas and gave considerable assistance and advice regarding castration and other problems.

11. Judging by the progeny of Government bulls, the present policy appears to be satisfactory. Calves from Lebanese bulls are stronger, more uniform in type and colour, and farmers are well pleased with the result. The milking qualities of the cross cannot be ascertained until the progeny calf down. Calves from Kerry and Guernsey bulls are now appearing, but it is as yet too early to report on their suitability or otherwise.

12. It is estimated that during the year approximately 2,500 village cows have been served by Government bulls.

13. *Jackasses.* Of the 16 jackasses on strength, 6 are Cypriot, 9 Damascus and 1 Catalonian × Cyprus. Six jackasses were stationed in the following Sub-Districts :—

Tiberias	2
Nablus	1
Gaza	1
Safad	1
Jenin	1

and two kept at the Farm for Acre Sub-District.

During the period 150 services were made, 95% being for mule breeding.

14. *Arab Stallions.* Three pedigree Arab stallions are now available for stud purposes; one stationed at Gaza and two at the Farm. Due to the presence of dourine in the country, all mares are blood tested before service.

15. The West Highland Pony stallions are being used for crossing with the Kadish mares with a view to obtaining satisfactory mules from the resultant female progeny at a later date. So for, the results are satisfactory.

16. *Lebanese Herd.* The Lebanese herd consists of 27 cows, 41 bulls, 9 heifer and 8 bull calves.

No cases of tick fever occurred and the animals have all been regularly tested for contagious abortion and tuberculosis, and proved negative.

Milk yields of the Lebanese breed are shown in Appendix No. 14.

17. *Kerry Herd.* The Kerry herd consists of 10 cows, 5 bulls, 4 bull and 3 heifer calves. As can be expected, the resistance to tick fever in this breed is less than in the native breeds, and unfortunately, one bull died of this disease.

Four Kerry bulls are now on loan to Arab farmers and are appreciated because of their small size and milk qualities.

18. *Guernsey Breed.* The Guernsey herd consists of two bulls only which are now on loan to Jewish settlements, and are being used for experimental crossing.

19. *Boaz Breed.* The Boaz herd has been reduced to two cows and two bull calves. Two cows and seven bulls were sold to farmers in the hill districts to continue the experiments as to their value as a draft animal.

20. *Sheep.* The flock consists of 209 breeding Awasi ewes, 60 rams, 29 ram lambs and 37 ewe lambs.

The Karakul flock has been increased to 8 rams, 16 ewes, 2 ram lambs and 5 ewe lambs.

50% of the Awasi ewes are kept with the object of breeding selected rams which are sold to farmers at popular prices.

The remaining 50% are crossed with the Karakul rams to ascertain the value of both the skin and the cross as a milk breed. So far, the first cross skins have been favourably commented on by the Imperial Institute, London, the value being quoted at 18/-, and samples of the second cross will be despatched for further report this year.

The pure Karakul ewes have been purchased from Germany, France and Rumania, with the object of ascertaining which are the most suitable for Palestine conditions.

21. *Goats.* The Damascus breed consists of 49 females, 27 males and 15 female and 20 male kids. The Mamber breed (Syrian) consists of 118 females 104 males and 21 female and 27 male kids.

Selective breeding is carried out with both breeds with the object of selling males of a better milk type to flockmasters.

22. *Pigs.* The herd of pedigree pigs consists of :—

6 Large White sows,
2 Large White boars,
4 Middle White sows,
1 Middle White boar,
21 piglets.

The demand for pigs is yearly increasing. During the year, 68 piglets at £P.1 each were sold to breeders.

23. *Courses of Instruction.* The three-months practical courses for Arabs and Jews are still proving popular, the courses including live stock management, poultry and bees, horticulture and agriculture. During the year, a total of 108 students attended.

24. The Farm is well patronized by the general public and those interested in the various branches of agriculture.

25. Due to the unsettled state of the country, Farmers' Day was not held as has been the custom during previous years.

B. M. CAMERON,
Manager.

ANNEXURE 'C'

POULTRY AND BEEKEEPING SECTION.

REPORT

BY THE SENIOR POULTRY AND BEEKEEPING OFFICER.

Poultry.

Modern poultry farming is developing quite satisafctorily and rapidly in this country. Existing farms have been greatly extended and a good many new ones have been established during the period under review. Unfortunately, this can be said only insomuch as Jewish farms are concerned, since the development of modern Arab poultry farming was seriously checked as a result of last year's disturbances. The main hatching and rearing season in Arab villages begins in April just at the time when the disturbances broke out. Four out of the twelve Government poultry stations had to be closed down temporarily due to the transport difficulties in supplying them with poultry feeding stuffs.

2. Egg production on modern poultry farms has increased considerably which is evidenced by the fact that the number of eggs sold through the various local co-operative bodies increased from 9,000,000 in 1925 to about 20,000,000 in 1936. Prices for fresh eggs remained normal but those for table fowls dropped considerably due to the importation of large quantities of such fowls from abroad.

3. This development, however, falls far short of satisfying the great demand for poultry produce in this country. The shortage of produce on the local market is being covered by imports from foreign countries which are increasing from year to year and which amounted to 92,0000,000 eggs and over 2,000,000 live fowls during the period under review. The local value of these commodities was in excess of £P.500,000. Thus, it can clearly be seen that there is yet ample room for the extension of this industry in Palestine.

4. The two main obstacles hindering the proper development of modern poultry farming in this country are the abnormally large imports of cheap live poultry and poultry produce and the high cost of poultry feeding stuffs. Government is endeavouring to assist the industry in overcoming these difficulties. The import duties on maize and barley were temporarily abolished. On the other hand, a duty has been imposed on imported fowls and the duty now levied on imported eggs was increased during February—June, when egg production in this country is at its height and when the country is nearly self-supporting in this respect.

Beekeeping.

5. Beekeeping is developing very satisfactorily. The total number of modern movable-frame hives in this country is over 22,000 at present and the total annual production of honey was roughly 275,000 kilogrammes. The crop consisted mainly of the orange honey flow since the summer honey flows were lost due to the disturbances which rendered conditions difficult to transfer hives to fields and mountain regions and to extract honey from those hives located in such places. Government has encouraged the development of modern beekeeping by means of the following activities :—

(a) *Distribution of duty-free sugar.* Over 200 tons of sugar were purchased by the Department and distributed duty-free to beekeepers for the purpose of bee feeding;

(b) *Honey Inspection and Export Regulations.* Regulations drawn up on similar lines as those adopted by Canada and the United States of America were enacted in order to enable Government to supervise the export of honey and in order to keep it up to standard;

(c) *Inspection of Beehives for Diseases.* Inspection of beehives with a view to control foul brood bee diseases was carried out by five permanently appointed Bee Instructors

and two temporary Bee Inspectors. All hives found to be infected with American foul brood were destroyed. The result of this work has proved to be quite satisfactory, since the number of cases of foul brood is being diminished from year to year;

(d) *Hornet control.* The free distribution of cyano gas powder to beekeepers for the destruction of hornets, a pest which used to destroy thousands of bee colonies in the past, is much appreciated by beekeepers. About 100 kilogrammes of this poison were distributed to beekeepers and horticulturists during the year.

Acre Poultry and Bee Station.

6. The Acre Poultry and Bee Station has not been extended during the period under review and the main activities have been concentrated on consolidating and organizing the work carried out there. Experimental work has been continued and the compilation of the data of a good many experiments is being completed and made ready for publication.

Importation of Poultry Breeding Stock.

7. Owing to lack of funds, no fresh poultry breeding stock has been imported. This, of course, is very regrettable as imported poultry in Palestine deteriorate from year to year in the process of acclimatisation. To counteract this and to maintain the high quality of the stock in this country, improvement by selection is carried out at Acre Poultry Station. However, such improvement alone is insufficient and it is found necessary to augment it by the annual importation of fresh breeding stock. It must be borne in mind that the improvement of poultry stock in Palestine depends largely upon the work carried out by the Government poultry stations, since by far the most important work along these lines is performed at such stations. Deterioration of stock at Government stations will, therefore, directly affect the stock of the entire country.

District Poultry Stations.

8. The new feature at each of the district poultry stations is the flock of Baladi hens improved at Acre by proper selection. These flocks, which are more resistant to local diseases than pure-bred poultry of imported breeds and which as a result of selection are larger in size and much better producers than local village poultry both as regards size and number of eggs laid, are much appreciated by indigenous poultry farmers. It is thought that in the villages, farmers will succeed better with this stock than with the imported breeds.

Distribution of Stock.

9. The distribution of breeding stock has been extended somewhat and has reached its maximum. Our main object will now be to improve the quality of existing stock rather than to increase the number for distribution. The following breeding stock was distributed from Acre and district poultry stations :—

56,709	hatching eggs,
8,867	day-old chicks,
1,657	four- to six-weeks-old chicks,
2,563	cockerels,
2,061	pullets,
685	broody hens,
27	turkeys,
24	ducks,
37	rabbits,
457	bee swarms.

The demand for stock was very high and it was possible to satisfy only a fraction of the number applied for.

Revenue from Government Poultry and Bee Stations.

10. The main object of the Government poultry and bee stations is the dissemination of practical technical knowledge to poultry farmers and beekeepers. Nevertheless, since breeding stock, hatching eggs and bee swarms are sold to farmers at nominal prices, the total sum

collected is an indication, although indirect, of the volume of assistance rendered. The revenue has increased from year to year, having reached £P.2,700 in cash, free issues being valued at £P.408, during the period under review. When the poultry stations and apiaries are fully established, the net cost of upkeep to Government may be very little.

Instructional Work.

11. The number of Poultry and Bee Instructors has been increased to five; the newly appointed officer is stationed in Beersheba in charge of Beersheba-Gaza area. It is believed that by having a special officer in that area, the development of poultry farming among the Bedu tribes, whose nomadic type of life is much suited to this branch of agriculture, will be encouraged.

Poultry Exhibit at Tel Aviv Levant Fair.

12. An attractive and imposing exhibit was displayed by the Poultry and Bee Section at the Levant Fair in Tel Aviv, during April and May, 1936. In all, it occupied over 1,000 square metres of ground and consisted of two sections: a live poultry exhibition, and an educational and demonstration section. The former included pens of turkeys, geese, guinea fowls, pea fowls, 8 breeds of poultry and 4 of ducks. Over 200 birds were housed in 22 small poultry houses, and a small water pond was specially built for the water fowls. The educational and demonstration section was housed in a 14m. × 6m. poultry house and consisted of many diagrams, illustrations, photographs, poultry and bee equipment, physiological and anatomical specimens. They fully and truly illustrated the development of poultry and beekeeping in Palestine, the possibilities for the future and the part the Poultry and Bee Section played in this development. This exhibit was much appreciated by the public and was considered to be one of the busiest spots in the Fair throughout its entire run. Local daily and agricultural papers also drew attention to its great success.

A. LIVSHITZ,
Senior Poultry and Beekeeping Officer.

APPENDIX No. 1.

INCIDENCE OF ANTHRAX.

Veterinary District	Outbreaks	Animals involved	Deaths	Animals vaccinated
TOTAL:	68	20,913	533	20,380
Jerusalem	12	8,498	199	8,299
Jaffa	14	606	15	591
Gaza	3	267	11	256
Nablus	16	3,452	191	3,261
Haifa	6	756	18	738
Tiberias	17	6,604	99	6,505

SUMMARY FOR 5 YEARS.

1932	72	24,066	391	25,973
1933/34	106	34,626	1,075	35,632
1934/35	71	15,304	538	14,766
1935/36	72	17,935	770	17,165
1936/37	68	20,913	533	20,380

APPENDIX No. 2.

INCIDENCE OF MANGE.

Veterinary District	Number of Examinations made				Animals found diseased				Stables disinfected
	Horses	Mules	Donkeys	Camels	Horses	Mules	Donkeys	Camels	
TOTAL:	10,518	8,596	35,955	10,586	20	5	18	219	93
Jerusalem	1,534	1,854	9,152	3,473	8	5	2	22	—
Jaffa	2,460	3,119	8,904	4,083	2	—	1	7	10
Gaza	449	380	483	97	1	—	4	1	6
Nablus	4,027	2,668	14,267	2,581	3	—	11	184	57
Haifa	1	—	—	—	1	—	—	—	—
Tiberias	2,047	575	3,149	352	5	—	—	15	20

SUMMARY FOR 5 YEARS.

1932	14,338	8,746	33,524	20,090	19	—	30	92	96
1933/34	14,390	8,373	43,369	25,477	29	4	15	392	217
1934/35	16,296	12,451	39,024	18,846	52	3	4	249	231
1935/36	12,045	8,601	44,249	19,045	34	4	5	159	138
1936/37	10,518	8,596	35,955	10,586	20	5	18	219	93

APPENDIX No. 3.

INCIDENCE OF RABIES.

Veterinary District	Dogs	Cats	Other Animals	Total
Total	85	12	25	122
Jerusalem	7	—	—	7
Jaffa	26	8	7	41
Gaza	11	1	3	15
Nablus	23	1	11	35
Haifa	6	—	2	8
Tiberias	12	2	2	16

SUMMARY FOR 5 YEARS.

1932	125	16	24	165
1933/34	91	16	11	118
1934/35	100	22	20	142
1935/36	67	9	21	97
1936/37	85	12	25	122

APPENDIX No. 4.

CONTROL OF RABIES.

DESTRUCTION OF DOGS, CATS AND OTHER ANIMALS.

District	Municipal & Local Council Areas		Rural Areas			Total
	Dogs	Cats	Dogs	Cats	Others	
TOTAL:	5,332	1,440	11,842	163	653	19,430
Jerusalem-Bethlehem-Jericho	807	90	598	41	—	1,536
Ramallah	33	8	698	16	—	755
Hebron	10	—	781	—	—	791
Jaffa	2,382	1,311	707	58	3	4,461
Ramle	493	13	1,579	22	240	2,347
Nablus	58	—	1,237	—	155	1,470
Tulkarm	25	—	1,384	—	139	1,548
Jenin	2	—	820	—	115	937
Haifa	510	9	402	4	1	926
Acre	—	—	445	—	—	445
Nazareth	104	3	231	22	—	360
Beisan	—	—	460	—	—	460
Tiberias	51	—	290	—	—	341
Safad	6	3	954	—	—	963
Gaza	788	3	1,154	—	—	1,945
Beersheba	63	—	82	—	—	145

SUMMARY.

Year	No. of Animals
1932	29,433
1933/34	10,640
1934/35	21,342
1935/36	16,426
1936/37	19,430

Appendix No. 5.

NUMBER AND KIND OF ANIMALS PASSED THROUGH ANIMAL QUARANTINE STATIONS.

Animal Quarantine Station	Horses	Mules	Donkeys	Camels	Cattle		Sheep	Goats	Pigs	Total	Poultry	Quarantine Receipts LP. Mils
					Male	Female						
Total:	787	583	349	20,688	31,220	2,885	204,853	60,804	224	320,393	2,021,676	21,362.375
Haifa	53	170	190	—	27,502	2,137	67,657	36,019	177	133,905	1,835,362	16,137.421
Ras en Naqura	—	—	—	—	—	—	—	—	—	—	33,617	145.701
Manawat	51	69	9	7	98	106	860	569	26	1,795	15,146	49.108
Jish	67	6	48	17	145	50	337	650	21	1,341	16,086	91.508
Buweiziya	81	40	73	14	161	233	12,173	2,903	—	15,678	5,300	355.342
Jisr Banat Ya'aqub	315	110	9	9	3	11	1,855	161	—	2,473	109,766	391.408
Samakh	184	142	3	5,725	1,201	178	81,483	11,139	—	100,055	2,665	2,166.855
Jisr el Majami'	—	—	—	13	1,121	60	2,394	71	—	3,659	171	106.563
Jisr Sheikh Husein	9	1	9	29	684	27	3,804	369	—	4,932	81	134.863
Jisr Damiya	15	38	3	11,782	1	3	10,904	74	—	22,820	—	807.470
Allenby Bridge	7	7	—	2,999	304	80	20,170	5,611	—	29,178	2,996	597.988
Hebron	—	—	—	16	—	—	725	560	—	1,301	486	28.058
Beersheba	—	—	—	77	—	—	2,358	2,574	—	5,009	—	101.630
Gaza	1	—	—	—	—	—	—	—	—	1	—	0.040
Khan Yunis	—	—	5	—	—	—	133	104	—	242	—	7.860
*Interior Control Posts	4	—	—	—	—	—	—	—	—	4	—	240.560

SUMMARY FOR 5 YEARS.

												LP.
1932	702	876	661	7,155	8,255	2,952	130,753	69,299	61	220,714	279,971	6,433
1933/34	1,020	1,580	1,244	19,287	16,082	6,194	165,814	93,317	—	304,538	423,058	9,945
1934/35	1,298	1,396	965	26,138	22,121	5,447	215,519	117,596	308	390,788	1,031,948	15,786
1935/36	1,332	1,092	996	17,264	33,040	9,148	317,118	139,413	421	519,824	1,985,930	25,951
1936/37	787	583	349	20,688	31,220	2,885	204,853	60,804	224	320,393	2,021,676	21,362

*Jerusalem, Jaffa, Nablus and Tulkarm.

Appendix No. 6.

CATTLE, SHEEP, GOATS AND POULTRY (BY COUNTRIES) IMPORTED BY SEA.

Country	Cattle	Sheep	Goats	Poultry
Total:	29,639	67,656	36,019	1,895,866
Bulgaria	1,790	—	—	—
Cyprus	562	—	—	—
Germany	166	—	—	—
Great Britain	3	—	—	—
Iraq	45	8,139	1	—
Irish Free State	5	—	—	—
Holland	380	—	14	—
Poland	124	—	—	11,888
Rumania	20,654	33	—	1,828,474
Switzerland	32	—	—	—
Syria	1,625	18,171	—	4
Turkey	—	51,313	36,004	—
Yugoslavia	4,253	—	—	—

SUMMARY.

1932	6,148	40,284	25,041	2,898
1933/34	10,206	94,986	69,671	1,542
1934/35	18,505	137,522	82,906	52,276
1935/36	27,264	171,411	77,913	1,891,488
1936/37	29,639	67,656	36,019	1,895,866

APPENDIX No. 7.

STOCK SLAUGHTERED IN SLAUGHTER HOUSES.

Slaughter House	Cattle	Sheep	Goats	Camles	Pigs	Total	Slaughter House	Cattle	Sheep	Goats	Camels	Pigs	Total
Jerusalem District:	9,050	35,270	24,017	54	155	68,546	*Northern District:*	9,317	48,681	14,851	11	602	73,462
Jerusalem	8,633	17,262	10,142	25	110	36,172	Haifa	6,413	18,258	7,257	1	552	32,481
Hebron	6	6,672	3,887	20	—	10,585	Acre	229	4,618	348	—	2	5,197
Ramallah	67	3,318	1,600	—	—	4,985	Hedera	688	1	3	—	—	692
Bethlehem	99	3,645	3,119	7	35	6,905	Zikhron Ya'aqov	384	3	10	—	—	397
Beit Jala	104	1,732	2,340	—	10	4,186	Tarshiha	—	23	705	—	11	739
Beit Sahur	7	391	1,400	—	—	1,798	Bassa	85	203	340	—	—	628
Jericho	21	1,588	1,066	2	—	2,677	Rama	—	123	347	—	—	470
Bira	113	662	463	—	—	1,238	Kafr Yasif	6	135	227	—	—	368
Southern District:	25,178	39,143	9,853	252	132	74,558	Shefa Amr	9	603	78	—	4	694
Jaffa	239	20,600	4,890	111	130	25,970	Nablus	7	8,344	678	1	—	9,030
Tel Aviv	16,758	1,044	29	—	—	17,831	Tulkarm	2	2,772	218	4	—	2,996
Lydda	3	3,364	1,231	9	—	4,607	Jenin	3	1,619	—	—	—	1,622
Ramle	1	3,946	2,096	1	2	6,046	Qalqiliya	13	1,325	127	—	—	1,465
Petah Tiqva	1,322	1	—	—	—	1,323	Tiberias	582	1,464	2,055	—	—	4,101
Rishon le Tsiyon	1,243	—	1	—	—	1,244	Nazareth	32	4,311	58	—	33	4,434
Rehovot	1,485	—	—	—	—	1,485	Beisan	5	1,713	728	1	—	2,447
Ramat Gan	1,679	4	—	—	—	1,683	Samakh	109	837	686	3	—	1,635
Hertsliya	715	4	4	—	—	723	Affula	305	—	—	—	—	305
Ra'anana	828	—	—	—	—	828	Mujeidal	11	73	23	1	—	108
Gaza	490	5,300	756	36	—	6,582	Safluriya	4	491	74	—	—	569
Majdal	184	2,149	221	35	—	2,589	Safad	430	1,765	889	—	—	3,084
Beersheba	27	1,109	365	1	—	1,502							
Khan Yunis	77	671	93	30	—	871							
Faluja	127	951	167	29	—	1,274							

SUMMARY FOR 1936/37.

Jerusalem District	9,050	35,270	24,017	54	155	68,546
Southern District	25,178	39,143	9,853	252	132	74,558
Northern District	9,317	48,681	14,851	11	602	73,462
Grand Total	43,545	123,094	48,721	317	889	216,566

SUMMARY FOR 5 YEARS.

1932	41,132	146,274	87,987	646	784	276,823
1933/34	54,207	157,540	93,748	882	749	307,126
1934/35	55,165	193,066	102,573	945	663	352,412
1935/36	51,923	222,546	89,778	846	721	365,814
1936/37	43,545	123,094	48,721	317	889	216,566

NOTE: As a result of the disturbances, a large number of slaughter houses were not functioning for a few months and consequently these figures do not represent the actual number of animals slaughtered within the 44 Municipal and Local Council areas.

APPENDIX No. 7a.

RECORD OF CONDEMNATIONS AT THE SLAUGHTER-HOUSES OF JERUSALEM, HAIFA, JAFFA AND TEL AVIV.

	CARCASES			QUARTERS			LUNGS, LIVERS AND OTHER ORGANS			APPROXIMATE WEIGHT IN KGS.		
	Cattle	Sheep	Goats	Cattle	Sheep	Goats	Cattle	Sheep	Goats	Cattle	Sheep	Goats
Jerusalem	32	—	—	2	—	—	2,515	914	243	15,707	794	159
Haifa	18	18	19	8	—	—	1,447	3,275	1,860	7,271	3,980	2,100
Jaffa	—	—	1	1	54	113	132	6,423	2,614	482	4,291	1,714
Tel Aviv	50	—	—	3	—	—	3,712	—	—	9,370	—	—
TOTAL	100	18	20	14	54	113	7,806	10,612	4,717	32,830	9,065	3,973

SUMMARY.

1933/34	359	36	15	59	55	128	9,910	22,023	7,817	46,192	16,869	6,557
1934/35	341	32	6	79	71	304	12,444	27,844	10,765	49,878	19,558	8,560
1935/36	291	45	16	101	81	136	11,072	23,871	5,892	59,003	17,733	6,389
1936/37	100	18	20	14	54	113	7,806	10,612	4,717	32,830	9,065	3,973

APPENDIX No. 8.

VETERINARY SERVICE TO POLICE.

	Attendances to police animals	Horses examined prior to purchase	Horses examined for casting	Boards of Enquiry attended
GRAND TOTAL:	1,463	336	157	228
Jerusalem District:				
Jerusalem Division	343	60	12	28
Hebron Division	30	1	2	3
Northern District:				
Haifa Division	150	28	36	40
Acre Division	32	1	6	6
Nazareth Division	255	43	28	28
Safad Division	239	39	16	22
Southern District:				
Jaffa Division	50	14	5	23
Ramle Division	59	15	9	18
Gaza Division	90	45	12	9
Nablus District:				
Nablus Division	78	26	11	15
Tulkarm Division	56	28	6	12
Jenin Division	56	15	6	16
Beersheba District:	25	21	8	8
SUMMARY FOR 5 YEARS.				
1932	1,839	386	75	143
1933/4	1,715	489	105	146
1934/5	1,650	342	118	178
1935/6	1,849	309	104	192
1936/7	1,463	336	157	228

APPENDIX No. 9.

RECORD OF DISPOSAL OF POLICE HORSES.

POLICE DISTRICT	DEATHS		DESTRUCTIONS		SALES		TOTAL	
	No.	Percentage to Strength	No.	Percentage to Strength	No.	Percentage to Strength	No.	Percentage to Strength
GRAND TOTAL:	21	3.4	67	10.9	38	6.2	126	20.6
Jerusalem	2	2	10	10	2	2	14	13
Northern	4	5	9	11	14	17	27	33
Southern	6	11	6	11	3	6	15	28
Nazareth	4	3	20	15.7	7	5.5	31	24.2
Nablus	3	3	9	8.4	9	8.4	21	19.8
Gaza-Beersheba	2	1.5	13	9.7	3	2.2	18	13.4
SUMMARY FOR 5 YEARS.								
1932	33	5.3	25	4.0	43	6.9	101	16.2
1933/34	24	3.5	29	4.3	23	3.4	76	11.4
1934/35	32	4.9	40	6.2	29	4.5	101	15.6
1935/36	21	2.8	47	6.2	30	4.0	98	13.0
1936/37	21	3.4	67	10.9	38	6.2	126	20.6

APPENDIX No. 10.

RULES MADE UNDER THE ANIMAL DISEASES ORDINANCE AND PROMULGATED DURING THE YEAR 1936/37.

DESCRIPTION OF RULES	PALESTINE GAZETTE	
	NUMBER	DATE
1. Prescribing the floor space per bird in crates in which poultry is imported..	593	14.5.36
2. Regarding the slaughter of swine intended for food in Jerusalem Municipal Area at the public Slaughter House of the Municipal Corporation	607	25.6.36
3. Regarding the importation of Horses, Mules and Donkeys from the U.S.A.	610	2.7.36
4. Fowl Cholera Rules, 1936	614	23.7.36
5. Regarding the removal of imported slaughter stock from Haifa to Ra'anana	615	30.7.36
6. Regarding the importation of stock from Iraq	624	20.8.36
7. Regarding the removal of imported slaughter stock from Haifa to Nathanya	625	27.8.36
8. Regarding fees payable for examination of cattle, sheep and goats imported for slaughter in quarantine	635	1.10.36
9. Regarding the removal of imported poultry directly to approved premises and providing for the destruction of receptacles in which poultry were imported to prevent introduction and spread of disease	639	15.10.36
10. Animals and Poultry (Sea Transport) Rules, 1936	642	29.10.36
11. Poultry (Land Transport) Rules, 1936	642	29.10 36
12. Regarding the importation of cattle, sheep and goats for slaughter purposes from the U.S.A.	650	10.12.36

APPENDIX No. 11.

DIAGNOSES.

RESULTS OF EXAMINATION OF SPECIMENS SUBMITTED FOR DIAGNOSIS 1.4.36 — 31.3.37.

Disease	Cattle	Horses Mules Donkeys	Sheep	Goats	Poultry	Bees	Dogs	Camels	Cats	Total
Piroplasmoses.										
Acute Theileria annulata	14	—	—	—	—	—	—	—	—	14
Theileria annulata	109	—	—	—	—	—	—	—	—	109
Anaplasmosis	18	—	2	2	—	—	—	—	—	22
Piroplasma bigeminum	19	—	—	—	—	—	—	—	—	19
Babesia bovis	17	—	—	—	—	—	—	—	—	17
Nuttallia equi	—	2	—	—	—	—	—	—	—	2
Piroplasma gibsoni	—	—	—	—	—	—	1	—	—	1
Piroplasma caballi	—	1	—	—	—	—	—	—	—	1
Blue bodies	1	—	—	—	—	—	—	—	—	1
Anthrax	54	5	58	18	—	—	—	—	—	135
Malignant edema	2	—	—	—	—	—	—	—	—	2
Epizootic lymphangitis	—	14	—	—	—	—	—	—	—	14
Tuberculosis	4	—	—	—	—	—	—	—	—	4
Pulpy kidney disease	—	—	7	—	—	—	—	—	—	7
Lamb dysentry	—	—	1	—	—	—	—	—	—	1
Paratuberculosis	6	—	—	—	—	—	—	—	—	6
Sarcoptic mange	—	—	1	20	—	—	—	—	—	21
Vibrio fetus	1	—	—	—	—	—	—	—	—	1
Acid fast bacilli	2	—	—	—	—	—	—	—	—	2
Actinobacillosis	1	—	—	—	—	—	—	—	—	1
Pleuro-pneumonia	—	—	3	8	—	—	—	—	—	11
Acute gastritis	1	—	—	—	—	—	—	—	—	1
Streptococcus infection	—	1	—	—	—	—	—	—	—	1
Strongylosis	—	5	—	1	—	—	—	—	—	6
Ascaris	—	2	—	—	—	—	—	—	—	2
Echinococcus	1	—	—	—	—	—	—	—	—	1
Excess of acetone in urine	1	—	—	—	—	—	—	—	—	1
Mastitis.										
Streptococcus	17	—	—	2	—	—	—	—	—	19
Streptococcus agalactiae	5	—	—	—	—	—	—	—	—	5
Staphylococcus	10	—	—	—	—	—	—	—	—	10
B. pyogenes	2	—	—	—	—	—	—	—	—	2
Tuberculosis	1	—	—	—	—	—	—	—	—	1

(Continued).

Disease	Cattle	Horses Mules Donkeys	Sheep	Goats	Poultry	Bees	Dogs	Camels	Cats	Total
Poultry Diseases.										
Egyptionella pullorum	—	—	—	—	5	—	—	—	—	5
Visceral gout	—	—	—	—	9	—	—	—	—	9
Coccidiosis	—	—	—	—	38	—	—	—	—	38
Fowl cholera	—	—	—	—	46	—	—	—	—	46
Fowl typhoid	—	—	—	—	14	—	—	—	—	14
Fowl diphtheria	—	—	—	—	2	—	—	—	—	2
Leukemia	—	—	—	—	5	—	—	—	—	5
Cell inclusion disease	—	—	—	—	2	—	—	—	—	2
Spirochaetosis	—	—	—	—	27	—	—	—	—	27
Proventriculitis	—	—	—	—	6	—	—	—	—	6
Avian tuberculosis	—	—	—	—	1	—	—	—	—	1
Tracheitis	—	—	—	—	2	—	—	—	—	2
Nephritis	—	—	—	—	3	—	—	—	—	3
Avitaminosis	—	—	—	—	1	—	—	—	—	1
Liver tumours	—	—	—	—	2	—	—	—	—	2
Cirrhosis of liver	—	—	—	—	2	—	—	—	—	2
Ruptured liver	—	—	—	—	1	—	—	—	—	1
Peritonitis	—	—	—	—	4	—	—	—	—	4
Enteritis	—	—	—	—	7	—	—	—	—	7
B. coli infection	—	—	—	—	1	—	—	—	—	1
Uropigitis	—	—	—	—	1	—	—	—	—	1
Ruptured oviduct	—	—	—	—	3	—	—	—	—	3
Roundworms	—	—	—	—	3	—	—	—	—	3
Tapeworms	—	—	—	—	4	—	—	—	—	4
Impaction of oviduct	—	—	—	—	1	—	—	—	—	1
Prolapse of cloaca	—	—	—	—	1	—	—	—	—	1
Cystic ovaries	—	—	—	—	1	—	—	—	—	1
Intussusception	—	—	—	—	1	—	—	—	—	1
Ascites	—	—	—	—	1	—	—	—	—	1
Impaction of intestines	—	—	—	—	1	—	—	—	—	1
Abcess of larynx	—	—	—	—	1	—	—	—	—	1
Bee Diseases.										
European foul brood	—	—	—	—	—	10	—	—	—	10
American foul brood	—	—	—	—	—	6	—	—	—	6
Negative	285	53	40	44	348	—	3	3	1	777
TOTAL	571	83	112	95	544	16	4	3	1	1,429

APPENDIX No. 12

ACRE STOCK FARM.

ESTABLISHMENT OF ANIMALS ON THE 31st MARCH, 1937.

KIND	BREED	No.	TOTAL
CATTLE :—			
Bulls	Lebanese	41	
	Kerry	5	
	Guernsey	2	48
Cows	Lebanese	27	
	Boaz	2	
	Kerry	10	
	Lebanese X Local	1	40
Heifer calves	Lebanese	9	
	Kerry	3	
	Guernsey X Lebanese	1	13
Bull calves	Lebanese	8	
	Kerry	4	
	Boaz	2	14
Total Cattle			115
HORSES :—			
Stallions	Arab	4	
	Highland Pony	2	6
Mares	Arab	6	
Foals	Arab	2	8
Total Horses			14
DONKEYS :—			
Jacksses	Damascus	9	
	Cyprian	6	
	Cyprian X Catalonian X Cyprian	1	16
Mares	Damascus	3	
	Cyprian	3	
	Catalonian X Cyprian	1	7
Jack foal	Cyprian	2	
Filly foal	Damascus	1	
Filly foal	Cyprian X Catalonian X Cyprian	1	4
Total Donkeys			27
SHEEP :—			
Rams	Awasi	60	
	Karakul	8	
		C/F.	68

KIND	BREED	No.	TOTAL
		Total B/F.	68
Ewes	Awasi	207	
	Karakul	16	
	Scotch Black Face	3	
	Beersheba	2	
	Karakul X Awasi	44	272
Ewe Lambs	Awasi	37	
	Karakul	5	
	Karakul X Awasi	44	
	Karakul X Karakul X Awasi	6	92
Ram Lambs	Awasi	29	
	Karakul	2	
	Karakul X Awasi	1	32
Total Sheep			464
GOATS :—			
She goats	Damascus	49	
	Mamber	118	
	Damascus X Mamber	5	172
Male goats	Damascus	27	
	Mamber	104	131
Female kids	Damascus	15	
	Mamber	21	36
Male kids	Damascus	20	
	Mamber	27	
	Damascus X Mamber	1	48
Total Goats			387
SWINE :—			
Sows	Middle White	4	
	Large White	6	10
Boars	Middle White	1	
	Large White	2	3
Male piglets	Large White	4	
Female piglets	Large White	5	
Female piglets	Large White X Middle White	12	21
Total Swine			34
WORKING ANIMALS :—			
Mules		8	
Horses		3	11
	Total Working Animals		11

APPENDIX No. 13

ACRE STOCK FARM

ANIMALS ACQUIRED DURING 1936/37.

KIND	BREED	No.	TOTAL	Country of Origin
Sheep	Karakul	8	8	Rumania
Goats	Mamber	1	1	Palestine
Bulls	Lebanese	1	1	Syria
Mules (Working animals)	American (ex-Army)	6	6	America
		TOTAL	16	

APPENDIX No. 14.

MILK YIELDS OF LEBANESE COWS IN KILOGRAMMES.

	Stud No.	S/29	S/30	S/32	S/33	S/35	S/37	S/39	S/40	S/46	S/47	S/48	Average for lactations
1st Lactation	No. of days	346	307	299	287	234	332	332	326	204	357	282	
	Av. per day	8	9	8	8	8½	8½	6.4	8	7.53	9	5.5	
	Total yield	2768	2763	2392	2296	1998	2822	2125	2608	1536	3213	4551	2388
	% of fat	3.68	3	4.18	4	4	3.9	4.32	3.94	4.5	3.99	4.58	
2nd Lactation	No. of days	274	276	372	280	270	353	261	—	297	345	—	
	Av. per day	9	11.5	11.68	8.72	8.72	10.8	7.5	—	8	10.5	—	
	Total yield	2466	3174	4345	2442	2354	3812	1957	—	2376	3622	—	
	% of fat	3.88	3.8	3.6	4.4	3.94	4	3.9	—	4.76	4.12	—	2949
3rd Lactation	No. of days	308	282	340	275	264	347	—	—	—	—	—	
	Av. per day	10.50	8.57	11	8	7.5	12	—	—	—	—	—	
	Total yield	3234	2417	3740	2200	1980	4164	—	—	—	—	—	
	% of fat	4.33	3.4	3.94	4.2	370	4.09	—	—	—	—	—	2955
4th Lactation	No. of days	265	346	—	—	—	—	—	—	—	—	—	
	Av. per day	12	11	—	—	—	—	—	—	—	—	—	
	Total yield	3180	3784	—	—	—	—	—	—	—	—	—	
	% of fat	3.8	3.81	—	—	—	—	—	—	—	—	—	3428
	Average for cow	2912	3034	3492	2279	2111	3599	2041	—	1956	3417	—	

Average for all cows: 2649.
The Kerry cows did not complete their lactation period since the last report, but are milking satisfactorily.

REPORT

BY THE CHIEF FISHERIES OFFICER,

Fishing was brought almost to a standstill during the strike. While at no time is it easy to obtain reliable statistics of landings by local fishermen this was unusually difficult during that period. Total landings and values for the year under review, at 1604 tons and £P.44,880 are 327 tons and £P.17,649 lower than those for the year 1935/36. The comparative figures for 1934/35, 1935/36 and 1936/37 are shown in detail in Table I.

2. The effect is shown most clearly in the monthly totals. For example the total landings at Haifa and Jaffa during May, June and July, 1935 and 1936 were as follows :—

	MAY		JUNE		JULY	
	1935	1936	1935	1936	1935	1936
	Kgs.	Kgs.	Kgs.	Kgs.	Kgs.	Kgs.
Haifa	66,950	—	55,400	6,850	55,800	6,150
Jaffa	78,599	12,072	59,363	10,633	80,140	14,013

It must be noted, however, that it is probable that actual landings were a little larger than the records available to the Fisheries Service show as a number of fisherman fished on their own account and did not disopse of their catches through the usual channels.

3. On the other hand it must be noted that the period of the strike covered the season when all modes of fishing, with the exception of the sardine fishery, are at their lowest ebb. Its termination was followed by a very good autumn and winter fishery, fish was abundant and even the weather was favourable. A new high record was established in February, 1937, with a total of 311 tons.

4. The Chief Fisheries Officer was appointed in June, 1936, and the office of the Fisheries Service was established in Haifa shortly afterwards. As a result of the reorganisation of the Fisheries Service following the appointment of the Chief Fisheries Officer, more comprehensive statistics of the fishing industry have been collected and landings by foreign fishermen have been distinguished from those of local fishermen. These more comprehensive statistics date from August, 1936, and a number of the tables in this report cover only the eight months of August, 1936 to March, 1937, for this reason.

5. A detailed review of the fishing industry is given in Table II which shows the quantity and value of fish landed at each fishing centre during the years 1935/36 and 1936/37. The total quantity of fish landed from the lake fisheries (Lakes Tiberias and Hula), remained stationary at 318 tons and amounted to 19.8% in 1936/37, and 16% in 1935/36 of the total local production of fish, the sea fishery production being more affected by the strike than that of the lakes, largely because the period of the strike coincided with the time of minimum production of the lake fisheries.

6. It will be noticed, (Table II), that an increased proportion of the catch was landed at the large fishing centres, Haifa and Jaffa. This increased centralization is partly due to the more rapid development of the industry at the large centres and partly to the fact that the foreign motor fishing boats landed their catches at Haifa and Jaffa.

7. The foreign motor fishing boats, all of which were motor trawlers of Italian registry, left the coast during the period of the strike. On two or three occasions these foreign trawlers

attempted to land fish during the strike at Haifa but were met with a boycot by the fish merchants. In all, 15 different trawlers visited the Palestine coast landing a total of 602 tons, valued at £P.8,876 (Table III).

8. The Italian trawlers range in size from vessels of 14 tons register with an engine of 150 h.p. employing a total crew of ten, down to vessels of 6 tons register with a 25 h.p. engine employing a crew of six. In general these vessels do not stay the whole year on the coast. Leaving aside some vessels which landed on only two or three occasions, on average they stay for three months at a time off the Palestine coast. The foreign trawlers refit at Port-Said. It may be mentioned here that the development of large motor fishing boats is at present hindered by the absence of a slipway capable of taking fishing vessels up to 15 metres. For example, a locally registered trawler was put out of commission by getting sand into the stern tube. The necessary repairs involved getting the vessel on a slip, the nearest slip to Haifa being Beirut. A total loss of ten working days and the towage cost to Beirut resulted in lieu of four days and no towage, had facilities been available at Haifa.

9. Some details of the landings by foreign and local trawlers are given in Table IV for the three months January, February and March, 1937. It will be noted that during this period landings per boat per day were higher at Haifa than at Jaffa. While part of this difference can be attributed to the fact that the large vessels worked from Haifa, it is also considered that during this period of the year trawl fishing meets better success in the North although it is also more risky, there being more foul trawling ground in the North than in the South.

10. The fuller statistics which have been collected since July, 1936, enable some useful comparisons between the total landings by different modes of fishing and the average price of the fish taken by the different methods, (vide Tables V and VI).

11. Detailed descriptions of the different modes of fishing have been given in the report of the Fisheries Adviser.* The English equivalent of the Arabic names of the different modes of fishing is as follows:—

Jarf — Beach seine.
Mubattan — Trammel.
Tahwig — Special form of trammel net with a horizontal portion.
Bashlula — Gill net.
Tarh — Cast net.

12. It will be noted that the best quality sea fish (Table V), is obtained by the so-called primitive modes of fishing, Jarf, Bashlula, Mubattan and long lines. It is the aim of the Fisheries Service to encourage the extension where possible of these modes of fishing by the use of motor boats as well as to introduce new methods of fishing. The superiority of the Jarf net as opposed to the Mubattan in Lake Tiberias is well marked (Table VI). Legislation to encourage the use of the Jarf net in the lakes is under consideration.

13. The producer's price has again fallen being 28 mils per kilogramme for 1936/37 as compared with 32 for 1935/36. The average producer's price of fish has fallen during the last four years as is shown below, although the amount of the reduction is not so great as to be noticeable to the average consumer.

AVERAGE PRODUCER'S PRICES OF FRESH FISH.

1933	1934/35	1935/36	1936/37
Mils per kg.	Mils per kg.	Mils per kg.	Mils per kg.
34.2	30.9	32	28

14. The abundance of the various species is shown in Tables VII and VIII. The sea-sardine fishery (Sardinella sp.) was poor during 1936 owing principally to the incidence of the strike, the total recorded catch being only 45 tons as compared with 441 in 1935/36.

15. The autumn and winter fishery of Musqar (Sciaena aquila) and Ghunbar (Pomatomus saltatrix), was particularly good, the fish being of an unusually large size, many

* Report on the Fisheries of Palestine by James Hornell, F.L.S., F.R.A.I. *Crown Agents for the Colonies*, 1935.

specimens being taken of over 50 cms. The abundance of these species probably had no connection with the slackening of fishing during the strike, as these large shoals almost certainly come in from deep water and are out of reach during the summer of the fishing gear at present in use.

16. A most striking feature of the winter fishing was the increased quantities of Luquz and Dawaqir (Epinephelus sp.) landed in the South from the line fishery. For example in February, 1936, the total landings of Luquz from the Southern District was only 3 tons whereas in February, 1937, it was 28 tons. The large increase is due in part to the discovery of new fishing grounds between Rubin and Askalon and also to the number of Jaffa boatmen who have this year taken to fishing. It should be mentioned that the deep sea line fishing calls for both skill and endurance on the part of the fishermen and the success of the Jaffa and Jura fishermen is a just reward for their efforts. These species are prime fish with an average weight of 10 kgs. Despite the greatly increased landings, the price of this fish has fallen only a little (from 47 mils per kilogramme to 40 mils per kilogramme).

17. The strike caused an increase of imports of fresh fish during its duration (Table IX). This increase, however, was offset by a decrease during the winter when local production was high.

18. Exports of fresh fish (Table X) are still small. The exports are generally to Lebanon, and result from occasioned gluts of the less valuable fish such as sardines and small fish taken by the trawl fishermen.

19. One of the most interesting developments during the year has been the various experiments in trawl fishing by vessels of Palestinian registry. The motor trawler referred to in last year's report was recommissioned in February, 1937, and has worked with a crew composed principally of local apprentices. A number of small troubles combined with the inexperience of the crew have hindered the success of this vessel. However, useful experience has been gained and provided the difficulties can be adjusted, the future of this venture should be considerably brighter.

A number of local fishermen at Haifa adapted a local boat for trawling, but lack of experience in the fundamental requirements of this mode of fishing led to the failure of this venture. A very similar experience was met with in Tel Aviv.

In Jaffa, a new fishing company was formed in November, 1936. This company started operation with one trawler which was converted from a harbour launch to a trawler at Port Said. The company has since increased its fleet to four vessels and has progressed steadily.

20. A canning factory which had previously specialised in canning fruit and vegetables started canning fish this year. Experiments were made with fresh-water and sea-fish and a considerable quantity of the former has been packed. Experiments with the so-called fresh water sardine (Alburnus sellal) of Lake Tiberias have been successful and some 70,000 tins of this fish have been put up in aspic, tomatoes or oil.

SECTION II.

21. The Chief Fisheries Officer arrived in Palestine on July 1st and during the period of the strike the opportunity was taken to revise the system of collecting fishery statistics. The statistics collected in the different districts after perusal at the Fisheries Office are passed to the Office of Statistics for tabulation. The assistance of the Office of Statistics in the compilation of Tables III, V, VI, VII and VIII, is hereby gratefully acknowledged.

22. One of the results of improved statistics has been the publication of a monthly statement of the fisheries in the statistical bulletin published by the Office of Statistics.

23. The revision of the Fisheries Ordinance and Rules occupied the time of the Fisheries Office during a considerable part of the year. The new Ordinance was published in February, 1937, and details are given in Section IV hereunder.

24. The principal duties of the District Fishery Officers have been to explain the provisions of the new Fisheries Ordinance and to give publicity to the facilities for technical advice which the Fisheries Service affords. Under the new Fisheries Ordinance the issue of fishing licences is made through the Fisheries Service. This innovation has the merits of

establishing close contact between the Fisheries Service and the fishermen, and during the latter part of the year (licences expire on March 31st) the District Fishery Officers visited all fishing centres to inform the fishermen of the change in procedure.

25. On a number of occasions, the Fisheries Service has represented the interests of the fishermen where industrial developments affecting the foreshore have conflicted with their interests.

26. The number of convictions for contraventions of the Fisheries Ordinance shows a decrease as compared with 1935/36 — the decrease being accounted for by the period of the strike (Table XI).

SECTION III.

FINANCIAL STATEMENT.

27. A statement of expenditure is shown in Table XII.

28. Revenue collected (by the Department of Customs, Excise and Trade) from the issue of fishing licences is shown in Table XIII.

SECTION IV.

LEGISLATIVE CHANGES.

29. The Fisheries Ordinance enacted in 1926 was amended by the Fisheries (Amendment) Ordinance, 1936. The principal item, section 3 (1), of this amendment ordinance prohibited the issue of fishing licences to any person manning or operating fishing vessels not of Palestinian registry, except under special circumstances.

30. The whole of the Fisheries Ordinance, 1926/36 and the supplementary legislation thereunder was revised and a new ordinance was enacted on the 18th February, 1937. (No. 6 of 1937, published in the Palestine Gazette No. 667 dated 18th February, 1937). The revised rules under the new ordinance were published on the 25th February, 1937, (Palestine Gazette No. 669).

31. The principal changes brought about by this new legislation are as follows:—

(1) It is now possible to issue two types of fishing licences, an ordinary fishing licence permitting the bearer to fish anywhere in Palestine except in the areas covered by the second type of licence, and an exclusive licence granting to the holder and his employees the exclusive right to fish specified areas or species of fish.

(2) Fishing in the territorial waters of Palestine is restricted except under special circumstances to vessels of Palestinian registry. At the same time foreign fishing vessels landing fish in Palestine are made subject to the same regulations in regards to mesh of nets and minimum size of fish to be landed as are fishing vessels of Palestinian registry.

(3) The powers of the officers enforcing the ordinance are increased and now include the power to demand from any person in possession of any fish, information regarding the source of his supply, and also to seize any fish which has been or is reasonably suspected of having been taken by the use of explosives or poisonous substance.

(4) The powers of the High Commissioner to make rules have been extended to cover the prescribing of places at which fish may be landed.

(5) The penalties for fishing by explosives or poison bait have been increased and minimum penalties have been prescribed for second or subsequent offences.

32. The principal changes under the rules have been as follows:—

(1) The issue of fishing licences is now made through the Fisheries Service.

(2) Two types of ordinary licences have been created, a general licence covering all modes of fishing, costing 500 mils and valid for one year, and a special licence covering the use of the cast net (Shabaket Tarh) only, fee 100 mils valid also for one year.

(3) Minimum sizes for 29 species of fish have been prescribed.

(4) Minimum sizes of mesh for all nets have been defined, this rule to come into force one year after publication (viz. in February, 1938).

A. L. CRAIG-BENNET,
Chief Fisheries Officer.

TABLE I.

COMPARATIVE STATEMENT OF FISH LANDED AND VALUE THEREOF DURING THE YEARS 1934/35, 1935/36 AND 1936/37, BY DISTRICTS.

District	1934/35 *		1935/36		1936/37	
	Weight Tons	Value £P.	Weight Tons	Value £P.	Weight Tons	Value £P.
TOTAL	1,545	51,304	1,931	62,529	1,604	44,880
Northern District	622	23,010	753	24,008	703	17,422
Southern District	711	24,284	861	30,023	583	17,980
Eastern District	212	4,010	317	8,498	318	9,478

* These figures represent actual data collected during the period 1st October, 1934, to the 31st March, 1935.

TABLE II.

COMPARATIVE STATEMENT OF CATCHES AND VALUE OF FISH CAUGHT AT EACH FISHING CENTRE DURING THE YEARS 1935/36 AND 1936/37.

	1935/36				1936/37			
			Percentage of Catch based on Total				Percentage of Catch based on Total	
	Weight Kilogrammes	Value £P.	District Catch	Sea or Lake Catch	Weight Kilogrammes	Value £P.	District Catch	Sea or Lake Catch
GRAND TOTAL	1,930,199	62,599	—	—	1,604,128	44,880	—	—
Total Sea Fisheries	1,613,483	54,031	—	100%	1,285,744	35,402	—	100%
Total Lake Fisheries	316,716	8,498	—	100%	318,384	9,478	—	100%
I. NORTHERN DISTRICT	752,645	24,008	100 %	46.7%	702,693	17,422	100 %	54.7%
Haifa	625,560	18,297	84.1%	38.8%	631,164	14,168	89.8%	49.1%
Acre	79,505	3,686	10.6%	4.9%	45,185	2,085	6.4%	3.5%
Tantura	16,050	920	2.1%	1.0%	15,784	733	2.3%	1.2%
Ez Zib	31,530	1,105	4.2%	2.0%	10,560	437	1.5%	0.9%
II. SOUTHERN DISTRICT	860,838	30,023	100 %	53.3%	583,051	17,980	100 %	45.3%
Jaffa	669,284	22,761	77.7%	41.5%	486,567	14,665	83.3%	37.9%
Jura	100,072	3,941	11.6%	6.2%	62,901	2,066	10.8%	4.9%
Gaza	91,482	3,321	10.7%	5.6%	33,583	1,249	5.9%	2.5%
III. EASTERN DISTRICT	316,716	8,498	100 %	—	318,384	9,478	100 %	—
Tiberias	225,408	6,483	71.0%	—	252,480	7,695	79.3%	—
Hula	91,308	2,015	29.0%	—	65,904	1,783	20.7%	—

TABLE III.

SEA FISH LANDED BY FOREIGN FISHERMEN AT EACH FISHING CENTRE DURING EACH MONTH, FROM AUGUST, 1936, TO MARCH, 1937.

Fishing Centre	WEIGHT							VALUE							AVERAGE PRICE PER KILOGRAMME						
	1936				1937			1936				1937			1936				1937		
	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March
	Kgs.	Kgs.	Kgs.	Kgs.	Kgs.	Kgs.	Kgs.	Kgs.	£P.	£P.	£P.	£P.	£P.	£P.	£P.	£P.	Mils	Mils	Mils	Mils	Mils	Mils	Mils	Mils
TOTAL	—	—	36,784	76,680	102,992	95,719	164,410	125,068	—	—	651	1,364	1,407	1,307	2,386	1,762	—	—	18	18	14	14	15	14
HAIFA	—	—	19,800	42,000	84,171	69,535	100,269	62,894	—	—	199	630	841	695	1,003	629	—	—	10	15	10	10	10	10
JAFFA	—	—	16,984	34,680	18,821	26,184	64,141	62,174	—	—	452	734	565	612	1,383	1,133	—	—	27	21	80	23	22	18

TABLE IV.

(A) LANDINGS BY FOREIGN TRAWLERS.

	1937		
	JANUARY	FEBRUARY	MARCH
HAIFA:—			
Number of vessels	6	6	6
Number of days possible to work	13	13	20
Total weight in kilogrammes	69,535	100,269	62,894
Total value in £P.	695	1,002	629
Number of boat/days worked	60	73	78
Weight (kgs.) per boat/day	1,158	1,373	805
Value (£P.) per boat/day	11.500	13.750	8
JAFFA:—			
Number of vessels	3	5	4
Number of days possible to work	15	25	24
Total weight in kilogrammes	26,184	64,141	62,174
Total value in £P.	612	1,383	1,133
No. of boat/days worked	31	60	80
Weight (kgs.) per boat/day	845	1,069	777
Value (£P.) per boat/day	19.750	23	14
TOTALS:—			
Total weight of landings (kgs.)	95,719	164,400	125,068
Total Value of landings (£P.)	1,307	2,385	1,862
Average weight per boat per day (kgs.)	1,050	1,230	790
Average value per boat per day (£P.)	14	18	12

(B) LANDINGS BY LOCAL TRAWLERS.

JAFFA:—			
Number of vessels	1	2	2
Total weight. (kgs.)	14,791	17,193	16,579
Total value (£P.)	103	387	388
Number of boat/days worked	14	30	28
Weight per boat/day	342	579	717
Value per boat/day	7.500	13	14.750

TABLE V.

WEIGHT, VALUE AND AVERAGE PRICE PER KILOGRAMME OF SEA-FISH CAUGHT BY EACH FISHING METHOD, DURING EACH MONTH, FROM AUGUST, 1936, TO MARCH, 1937.

Mode of Fishing	WEIGHT IN KILOGRAMMES								VALUE £P.								AVERAGE PRICE: MILS PER KILOGRAMME							
	1936					1937			1936					1937			1936					1937		
	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
TOTAL	15,450	23,367	96,352	132,038	182,760	173,655	259,700	238,094	784	1,054	3,181	3,664	4,603	4,657	6,232	6,014	51	45	33	28	25	27	24	25
Trawling (Foreign)	—	—	36,784	76,680	102,992	95,719	164,410	125,068	—	—	651	1,364	1,406	1,307	2,386	1,762	—	—	18	18	14	14	15	14
Trawling (Local)	—	—	—	—	—	4,791	17,193	16,579	—	—	—	—	—	103	387	338	—	—	—	—	—	21	23	20
Maltash	—	—	—	500	—	—	3,482	7,540	—	—	—	12	—	—	50	151	—	—	24	—	—	—	14	20
Jarf	4,807	9,190	15,126	10,856	33,766	23,134	24,142	29,982	212	375	738	430	1,073	947	1,335	1,174	44	41	49	40	32	41	55	39
Mubattan	510	2,431	5,440	8,820	4,840	4,447	3,366	6,540	35	104	285	398	207	222	135	303	69	43	52	45	43	50	40	46
Lampara	—	300	12,100	8,450	—	—	—	—	—	6	120	169	—	—	—	—	—	20	10	20	—	—	—	—
Bashlula	—	514	4,063	8,624	21,147	20,594	6,462	10,955	—	36	287	457	1,068	949	346	527	—	70	71	53	51	46	54	48
Shabaka	1,489	3,526	4,151	3,616	7,647	9,154	3,322	5,563	94	148	237	176	349	361	158	277	63	42	57	49	46	39	48	50
Hand or long lines	5,644	4,075	11,428	10,367	9,968	15,816	31,903	35,867	263	176	507	452	399	768	1,113	1,482	47	43	44	44	40	49	35	41
Tahwiq	3,000	3,331	7,260	4,125	2,400	—	5,420	—	180	209	356	206	99	—	322	—	60	63	49	50	41	—	59	—

TABLE VI.

WEIGHT, VALUE AND AVERAGE PRICE PER KILOGRAMME OF LAKE FISH CAUGHT BY EACH FISHING METHOD, DURING EACH MONTH, FROM AUGUST, 1936, TO MARCH, 1937.

Mode of Fishing	WEIGHT IN KILOGRAMMES								VALUE £P.								AVERAGE PRICE: MILS PER KILOGRAMME							
	1936					1937			1936					1937			1936					1937		
	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
TOTAL	11,131	19,761	21,486	18,018	27,615	56,487	51,549	37,806	466	694	814	591	557	1,032	1,355	1,312	41	35	38	33	20	18	26	35
Jarf	—*	7,311	8,862	4,020	2,127	6,660	12,978	12,153	—*	296	371	158	90	268	571	537	—*	41	42	39	42	40	44	44
Mubattan	—*	10,409	11,628	13,224	13,122	18,126	15,195	16,377	—*	308	399	400	404	605	610	590	—*	30	34	30	31	33	40	36
Hand or long lines	—*	1,632	996	774	—	—	330	447	—*	72	44	33	—	—	15	20	—*	44	44	44	—	—	45	45
Shabaka	—*	411	—	—	—	—	1,245	3,507	—*	18	—	—	—	—	50	149	—*	40	—	—	—	—	40	42
Sardina nets	—	—	—	—	12,366	31,701	21,801	5,322	—	—	—	—	63	159	109	16	—	—	—	—	5	5	5	3

* Figures for the month of August not inserted as Lake Hula figures were not available.

TABLE VII.

WEIGHT, VALUE AND AVERAGE PRICE PER KILOGRAMME OF EACH SPECIES OF SEA-FISH LANDED BY LOCAL FISHERMEN, DURING EACH MONTH, FROM AUGUST, 1936 TO MARCH, 1937.

Species by Local Name	WEIGHT IN KILOGRAMMES								VALUE £P.								Average Price: Mils per Kilogramme							
	1936					1937			1936					1937			1936					1937		
	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
TOTAL	15,540	23,367	96,352	132,038	182,760	173,655	259,700	238,094	784	1,054	3,181	3,664	4,603	4,657	6,232	6,014	51	45	33	28	25	27	24	25
Ajaj	—	—	—	300	—	—	—	—	—	—	—	21	—	—	—	—	—	—	—	—	—	—	—	—
'Asfur	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
'At'ut	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Balamida	—	—	—	—	700	800	880	4,520	—	—	—	—	21	20	26	136	—	—	—	—	30	25	30	30
Arfida	—	—	450	—	1,400	700	—	—	—	—	18	—	51	21	—	—	—	—	40	—	36	30	—	—
Buri	4,940	8,245	10,317	7,222	12,028	9,647	5,213	5,664	314	414	609	376	542	491	261	317	64	50	59	52	45	51	50	56
Bursh	1,350	957	3,695	1,440	1,328	9,703	5,492	7,471	14	8	16	8	6	85	28	69	10	8	4	6	5	9	5	—
Dawaqir	3,015	9,180	7,670	6,362	8,862	10,797	28,288	30,192	143	152	361	266	329	535	967	1,210	47	48	47	42	37	50	34	40
Farriden	1,042	948	2,313	2,139	853	1,276	3,853	2,100	104	65	125	157	50	96	173	117	100	69	54	73	59	75	45	56
Ghubbus	—	—	—	3,420	3,200	3,500	9,177	—	—	—	—	102	90	35	49	—	—	—	—	30	28	10	5	—
Ghunbar	732	492	1,744	885	9,348	9,228	19,440	22,388	44	14	109	53	465	513	1,252	1,025	60	28	63	60	50	56	64	46
Intyas	—	400	1,260	1,782	900	271	556	700	—	28	64	88	15	14	25	35	—	70	51	49	50	52	45	50
Isfirna	—	—	—	—	—	—	—	790	—	—	—	—	—	—	—	49	—	—	—	—	—	—	—	62
Jarbiden	—	800	12,940	22,550	40,850	30,361	46,313	27,494	—	56	260	592	597	475	865	575	—	70	20	26	15	16	19	21
Kalb el Bahr	810	336	1,170	1,076	153	743	18,312	12,327	6	4	10	6	2	7	53	38	7	12	9	6	13	9	3	3
Mallita	—	—	1,700	—	500	900	300	900	—	—	68	—	25	27	12	41	—	—	40	—	50	30	40	46
Mannurin	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Maramir	200	400	2,200	500	2,700	2,750	—	—	10	24	89	12	85	82	—	—	50	60	40	24	31	30	—	—
Musqar	1,287	4,181	10,113	9,551	18,796	17,783	11,304	12,127	86	191	611	518	952	873	593	583	67	46	60	54	51	49	52	48
'Uqqar	—	350	—	600	—	800	700	1,200	—	14	—	24	—	32	21	48	—	40	—	40	—	40	30	40
Samak Musa	—	—	—	2,680	2,821	1,200	768	870	—	—	—	—	134	85	54	40	22	—	—	—	50	30	45	52	59
Sarghus	610	1,728	3,341	1,870	1,000	1,007	1,485	1,987	34	40	178	93	47	58	54	79	56	28	53	50	47	58	36	40
Sardina	1,365	1,000	10,400	8,450	6,250	—	3,482	11,725	25	20	52	169	124	—	50	235	18	20	5	20	20	—	14	20
Saqqaya	—	—	700	5,000	—	7,859	20,654	29,721	—	—	28	100	—	167	393	437	—	—	40	20	—	21	19	15
Skumbli	99	—	450	1,961	—	—	500	—	4	—	27	94	—	—	—	20	40	—	60	48	—	—	40	—
Sultan Ibrahim	—	250	25,884	37,750	60,150	51,574	73,611	49,189	—	24	556	631	978	944	1,219	781	—	69	21	17	16	18	17	16
Tarakhun	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Turghullus	—	—	—	1,800	750	2,200	—	—	—	—	—	73	30	22	—	—	—	—	—	—	41	40	10	—
Qreidis	—	—	—	—	—	—	302	—	—	—	—	—	—	—	15	—	—	—	—	—	—	—	50	—
Sabbiden	—	—	—	—	—	5,306	3,000	9,000	—	—	—	—	—	53	75	135	—	—	—	—	—	10	25	15
Other species	—	—	—	14,700	10,771	5,250	6,070	8,229	—	—	—	147	107	53	41	82	—	—	—	10	10	10	7	10

TABLE VIII.

WEIGHT, VALUE AND AVERAGE PRICE PER KILOGRAMME OF EACH SPECIES OF LAKE FISH LANDED BY LOCAL FISHERMEN DURING EACH MONTH, FROM AUGUST, 1936, TO MARCH, 1937.

Species by Local Name	WEIGHT IN KILOGRAMMES								VALUE £P.								Average Price: Mils per Kilogramme							
	1936					1937			1936					1937			1936					1937		
	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
TOTAL:	11,131	19,763	21,486	18,018	27,615	56,487	51,549	37,806	455	695	814	592	558	1,032	1,355	1,312	41	35	38	33	20	18	26	35
Musht Abyad	2,598	5,079		6,378	5,448	9,297	8,085	7,521	130	149		205	201	364	320	297	50	29		32	37	39	40	39
Musht 'Addadi	378	12		—	—	—	—	177	6	—		—	—	—	—	4	17	13		—	—	—	—	23
Musht Kalb	—	—	5,088	—	—	—	9	987	—	—	215	—	—	—	—	20	—	—	42	—	—	—	20	20
Musht Lubbad	—	—		291	2,757	4,719	288	—	—	—		6	74	119	7	—	—	—		20	27	25	24	—
Musht Maramir	489	—		—	—	—	—	237	10	—		—	—	—	—	6	20	—		—	—	—	—	25
Musht 'Uqqar	978	4,496	5,334	5,505	3,135	3,090	495	1,566	26	119	142	147	84	82	13	42	27	26	27	27	27	27	26	27
Barbut	57	42	24	84	279	291	120	369	1	1	—	2	8	8	3	7	17	17	13	23	27	27	25	19
Haffafi	177	1,467	1,677	750	477	606	852	1,290	2	39	45	15	10	15	18	33	13	27	27	20	21	25	21	26
Kersin	4,336	5,615	7,740	4,368	2,868	6,024	18,078	16,917	188	252	339	192	106	252	804	736	43	45	44	44	37	42	44	44
Qishra	2,123	3,052	1,623	642	285	759	1,821	3,420	92	135	73	25	13	33	81	151	43	44	45	39	45	43	44	44
Sardina	—	—	—	—	2,366	31,701	21,801	5,322	—	—	—	—	62	159	109	16	—	—	—	—	5	5	5	3
Other species	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

TABLE IX

IMPORTS OF FISH

	1936/37		1935 *	
	Weight Kgs.	Value £P.	Weight Kgs.	Value £P.
Fish in brine, dry and salted	1,933,957	42,116	1,631,504	37,706
Fish tinned	1,291,124	59,388	1,470,634	68,707
Fish fresh and frozen	1,598,173	66,566	1,754,859	67,151

* Calendar year.

TABLE X

EXPORTS OF FISH

	1936/37		1935 *	
	Weight Kgs.	Value £P.	Weight Kgs.	Value £P.
Fish in brine, dry and salted	—	—	—	—
Fish tinned	—	—	—	—
Fish fresh and frozen	150,032	4,715	160,203	5,277

* Calendar year.

TABLE XI

STATEMENT OF CONVICTIONS UNDER THE FISHERIES ORDINANCE, 1936/37.

	1936/36	1936/37
Northern Area	20	5
Southern Area	44	19
Eastern Area	84	37
TOTAL	148	61 *

* No convictions were made during the period of the strike, April—October, 1936.

TABLE XII

STATEMENT OF EXPENDITURE — FISHERIES SERVICE, 1936/37.

	£P.
Classified personnel	1,490
Unclassified personnel	180
Other Charges:	
Fisheries Service	200
Transport and Travelling	425
Special Expenditure:	
Purchase of Motor Fishing Boat	879
TOTAL EXPENDITURE	£P. 8,174

TABLE XIII

REVENUE COLLECTED* FROM ISSUE OF FISHING LICENCES, 1936/37.

	£P.
Northern Area	142 —
Southern Area	82 —
Eastern Area	56 —
TOTAL	£P. 280 —

* Collected by Department of Customs, Excise and Trade.

REPORT

OF THE HORTICULTURAL AND FRUIT INSPECTION SERVICES

FOR THE

YEAR ENDED 31ST MARCH, 1937.

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REPORT

OF THE HORTICULTURAL AND FRUIT INSPECTION SERVICES

FOR THE

YEAR ENDED 31ST MARCH, 1937.

I. STAFF.

A considerable increase in staff was necessary for fruit inspection purposes, in view of the much larger crop of citrus. Permanent Assistant Fruit Inspectors were increased by 2 and temporary Assistant Fruit Inspectors by 13; a larger number of packers, carpenters and guards had also to be engaged. One additional Horticultural Instructor was appointed for the purpose of allowing more attention being given to the groves in the Acre Sub-District.

One Horticultural Station Superintendent was transferred to the Plant Protection Service in consequence of the transfer of the Jerusalem Horticultural Station to that Service. The Horticultural Instructor in charge of the Citrus Demonstration Station, Sarafand, assumed duties as Horticultural Instructor for the Samaria district on the 1st March, 1937. On the same date the Horticultural Station Superintendent, Nablus, was transferred to Sarafand, and the Horticultural Station Superintendent in charge of the demonstration plots in the Nablus Sub-District, to the Nablus Horticultural Station.

The following acting appointments were made during the year:—

Mr. A. Grasovsky, M.B.E.,	seconded to the District Administration for 2 months.
-do-	as Chief Fruit Inspector for 41 days.
Mr. Z. Rapoport,	as Senior Horticultural Officer for 2½ months.
Mr. M. Shiff,	as Horticultural Instructor, Jaffa, for 2½ months.

Due to the disturbances it was necessary to transfer the Jewish staff from Jericho, 'Ein 'Arrub, Farwana, Sarafand and Majdal Horticultural Stations for the greater part of the year.

At the close of the year the staff comprised the following:—

Horticultural Service:—

Headquarters:

Chief Horticultural Officer	1
Senior Horticultural Officer	1
Viticultural Officer	1
Clerks	2
Stenographer	1
Messenger	1

District Stations:

Horticultural Instructors	4
Station Superintendents, Grade N	2
Head Gardener, Government House, Grade N	1
Station Superintendents, Grade O	7
Nurserymen and Gardeners	29

Fruit Inspection Service :—

Chief Fruit Inspector	1
Fruit Inspectors	3
Asst. Fruit Inspectors—permanent	10
Clerks	3
* Asst. Fruit Inspectors—temporary	37
* Packers	32
* Carpenters	33
* Guards	56

* Employed for the citrus season.

II. THE CITRUS INDUSTRY.

AREA UNDER CITRUS.

The area under citrus was estimated at 298,000 dunams as at March 31st, 1937, an increase of 20,000 dunams during the year. This estimate can only be regarded as approximate, and is being checked by a field survey which includes the collection of data as to varieties, stocks upon which the trees are budded, and their ages, etc. A total area of 83,921 dunams was surveyed comprising, 65,621 dunams of orange groves, 12,618 grapefruit and 5,682 other citrus.

CITRUS CROP AND ITS DISTRIBUTION.

The citrus crop developed normally throughout the summer and early autumn, weather conditions favouring the production of a heavy crop. Warm weather continuing into November was conducive to the development of Mediterranean fruit fly in most parts of the country; this was, however, checked by cold weather in subsequent months, and the incidence of this pest later in the season was less than during the same period in the previous year. Severe damage was caused to trees and fruit by gales occuring during the latter part of December, and the total losses from this cause in dropped and injured fruit was estimated to be not less than 1,000,000 boxes. January was one of the wettest months on record and many groves were water-logged; hail also did some damage. This weather, following as it did, the December storms, greatly depreciated the general keeping qualities of the fruit, with the result that heavy wastage was subsequently reported from markets abroad. Contributory factors to the bad weather conditions as affecting wastage were the failure of grove owners to clean up their groves and trees of mouldy fruit and the overloading of boats. The weather during February improved, and with it the quality of the fruit, although wastage continued to be higher than normal for the remainder of the season.

Despite the unfavourable weather, the export crop of 10,790,110 boxes constituted a record, being 3,459,264 higher than the previous record in 1934/35, and 4,893,800 boxes more than the crop of the last season. The composition of the export crop as compared with that of the last two seasons is shown hereunder :—

	1934/35	1935/36	1936/37
	Boxes	Boxes	Boxes
Oranges	6,507,995	4,997,302	9,166,903½
Grapefruit	791,661	850,120	1,542,046½
Lemons	30,058	46,915	70,792
Other Citrus	1,132	2,973	10,368

The United Kingdom was, as usual, the most important market, absorbing 7,610,845 boxes as compared with 4,009,503 in 1935/36. The total export of 3,021,631 boxes to continental

countries was an increase of 1,184,597 boxes over the previous year; those showing an appreciable increase in their imports are listed below with the figures of the two previous years :—

	1934/35	1935/36	1936/37
	Boxes	Boxes	Boxes
Holland	367,895	344,679	604,718
Germany	509,494	222,644	319,392
Sweden	108,325	162,229	310,857
Poland	163,086	273,205	307,803
France	170,586	114,170	280,572
Belgium	124,002	84,892	258,485
Rumania	170,027	137,622	219,768
Norway	105,791	107,533	158,327
Czechoslovakia	62,069	77,872	166,212
Finland	35,659	44,028	74,716

Prices. (See Table B.)

Lemons. The citrus season opened in August with the first shipment of lemons. These, although green in colour, were juicy and generally of good quality. Limited sales were made during this month at 4/- and in November at 3/- to 4/- per box on the tree. Good prices, (20/- to 40/-) were realised in the United Kingdom for the early fruit, but by October, prices had fallen to a low level of 8/- to 13/- per case. Sales to the Continent were reported at 6/- to 7/- per case f.o.b.

Grapefruit. According to the Citrus Fruit Export Rules grapefruit were permitted to be exported as from the 1st October and prior to that date on satisfying the Fruit Inspectors as to maturity. Some fruit from Tiberias having been found to conform with the maturity standard, was allowed to be exported in September.

A few sales were effected during October and November at 2/- to 3/- per case on the tree, but the demand was poor. Heavy shipments at the commencement of the season, poor colour of the early fruit, and severe competition with the end of the South African crop resulted in low prices in October. These recovered slightly later, but remained practically below cost of production and marketing for much of the fruit sold in the United Kingdom. Such records of sales to the Continent as are available at the time of writing this report places them at 4/- to 7/- per case f.o.b.

Oranges. The orange export season commenced on the 20th November, the fruit at that date being well advanced in maturity. Advance sales on the tree were reported at 3/- to 4/- per case in August, 4/- to 5/6 per case in October, and 3/- to 5/- per case in November and December; in January the demand was poor—at 2/- to 4/- per case. There were no sales on the tree during February, but the demand improved from the middle of March, due to better reports of arrivals, and sales of 100,000 boxes were reported at 2/6 to 3/6 per box on the tree.

Prices on the United Kingdom market although lower than for the preceding year, were fair up to early January; from that date a combination of factors, including heavy arrivals from Palestine and Spain and the wasty condition of the fruit, had a bad effect on prices, and much of the crop sold at a level below the cost of production and marketing. There was a slight revival in prices in March. Sales of oranges to the Continent were reported at from 6/6 to 9/- f.o.b.

General. The difficulty of arriving at average values may be realised from the foregoing data, and more particularly on account of the heavy losses due to wastage and the cost of repacking overseas which was involved. The average net returns to the grower cannot as a consequence be calculated from the market prices and the number of boxes exported, owing to the large quantity of fruit which had to be sacrificed due to heavy wastage. The returns to growers by co-operative societies will be the best indication of the net average prices realised for the fruit; these are not available at the time of writing this report. It may, however, be taken for certain that on an average, orange growers will have closed the season with a very small profit per case for oranges, and no profit for grapefruit. It is reported that shippers who have purchased fruit on the tree have in many cases lost heavily.

Transport. The condition of most of the feeder roads which were in a bad state of repair at the beginning of the season, grew rapidly worse and many of them were almost impassable early in January; a number of growers had to transport fruit to the main road by camels during wet periods. Fruit from Arab groves was sent to Jaffa for export, being transported by road to Jaffa from as far distant as Tulkarm and Gaza, and from Jewish groves to Haifa and Tel Aviv. Large quantities of big oranges were transported by lorries and sailing vessels to Syria. The organisation of the transport of citrus fruit by rail was most satisfactory, particularly in view of the change in arrangements for export between the Arab and Jewish shippers as a result of the disturbances, and of the much larger crop handled.

Petah Tiqva, Rehovot and Hadera railway stations handled greatly increased quantities of fruit. There was a reduction in the quantity of fruit sent to markets abroad via Port Said.

The arrangements for shipping were inadequate and nearly all boats were overloaded; it was common to see fruit stacked on deck. Storing in the open had to be resorted to in Haifa port early in the year owing to congestion in the transit sheds due to lack of shipping. Although an improvement is to be reported for methods of handling citrus cases at the groves, railway stations and ports, it can still only be regarded as being roughly done. Many cases were damaged during loading by slings from lighters into the holds of steamers and by careless storing on board. Little or no dunnage is used on the boats and ventilation is also lacking on many. These problems have continued to be studied during the year by the Citrus Transportation and Marketing Sub-Committees, and as a result plans are now under consideration for prescribing minimum standards for fruit carrying ships and for an investigation into the causes of wastage which will include a study of conditions on board ships.

One refrigerated boat loaded citrus at Tel Aviv and Haifa in March and a few sailing vessels carried consignments for transhipment at Port Said.

The movement of fruit for export from the ports and railways as compared with previous years is shown below :—

	1934/35	1935/36	1936/37
	Boxes	Boxes	Boxes
Ex Jaffa	4,212,649	3,478,898	3,605,514½
Ex Haifa	2,953,392	2,242,609	6,671,724½
Ex Tel Aviv	—	—	366,327
Via Kantara	164,805	175,803	146,544

FRUIT INSPECTION.

Fruit Inspection was undertaken at Jaffa town, Jaffa Port, Tel Aviv lighter basin, Haifa port and at eighteen railway stations. The completion of the Jaffa port made it possible to inspect fruit within the port area instead of in the town as was the custom in the past. This made it possible to inaugurate a new system of selecting the boxes for inspection by which access to any box of fruit sent for export was both convenient and practicable. The consignment note which it was made compulsory to deliver with each load of fruit and which designated the different brands and counts, was a considerable aid to the selection of boxes for inspection. Objection was at first taken by exporters to the new system but this was soon overcome and afterwards worked smoothly; the inspectors were, however, somewhat handicapped by exporters and members of the public being present during inspection.

A total of 211,800 boxes, or 1.96% of the total boxes exported, were rejected after inspection of which 209,149 boxes were repacked under the supervision of Fruit Inspectors; 24,367 boxes of fruit being discarded in the process. The principal causes for rejections were, waste 63,179 boxes, mechanical injuries 50,355, irregular sizing 13,910, red scale 12,532, fumagine 9,403, Mediterranean fruit fly 7,287, and mussel scale 5,714. Other causes for rejection were black scale, oversized boxes, incorrectly marked cases, loose packing, etc.

Waste began to appear in fruit awaiting shipment in January and by February this had become a serious factor, and many adverse reports as to the condition of arrivals were received from the overseas markets. Steps were taken to re-examine fruit awaiting shipment and to cleanse thoroughly the transit and railway sheds. Propaganda was intensified by means of the Broadcasting Service and press for the collection and burying of rotten fruit, and the cleaning of packing houses and railway wagons; shipping agents were also invited to co-operate

by disinfecting the holds of fruit carrying ships. Some idea of the incidence of waste month by month is shown in the following table :—

	Number of boxes rejected on account of wastage
December, 1936	Nil
January, 1937	2,996
February, 1937	20,414
March, 1937	30,582
April, 1937	9,187

The most serious factor was the rapid breakdown of fruit after it had left the country, making repacking of many consignments necessary during February and March. In the United Kingdom wastage was reported to be 25 per cent. for oranges as compared with 5 per cent. in a normal year.

The rules made under the Fruit Export Ordinance, 1927, were revised and a new set issued on the 19th July, 1936. Important changes which were incorporated in the new rules, were the prohibition of the export of all large sizes of oranges below 120 to the box, the changing of the date of the commencement of the export season for oranges from November 15th to the 20th, a more precise definition of "blemishes", the option to export in a new type of box, the furnishing of a consignment note with all fruit presented for inspection, the repacking of rejected fruit under Government supervision, and the reduction of the fee for maturity tests. Exporters took little advantage of the opportunity to test the "Haorez" box described in my last report, and there appears little prospect of its being adopted as a standard box.

Maturity tests of samples of citrus collected from eight localities were made from August to March, and the data collected will be utilised in any investigations into fruit wastage which may be undertaken.

The Fruit Inspectors who were employed on the general citrus survey during the summer months, undertook the usual propaganda on grove sanitation, and gave considerable assistance to the Plant Protection Service in carrying out demonstrations for the control of Mediterranean fruit fly during November and December.

Number of Boxes Exported according to Count. One of the new Citrus Fruit Export Rules, making it compulsory to furnish consignment notes with all fruit presented for inspection, has made it possible for the first time to summarise exports according to count. This is done for oranges and grapefruit in the table below :—

ORANGES		GRAPEFRUIT	
Count	Number of boxes exported	Count	Number of boxes exported
120	1,788,193	54	10,876
128	71,922	60	—
136	2,340	64	349,297
140	246,295	72	—
144	430,552	80	731,179
150	3,375,302	84	—
152	3,842	96	317,958
160	164,606	100	9,324
180	1,633,809	108	26
200	2,136	112	84,241
210	728,408	120	5,044
220	553	126	18,639
226	22	128	2,388
240	425,995	140	286
250	17	150	5,827
260	735	180	3
270	3,881		
280	5,521		
288	19,604		
294	245,199		
300	16,236		
320	164		
336	2,495		
340	71		
360	3		
	9,167,901		1,535,088

CITRUS SURVEY IN THE ACRE SUB-DISTRICT.

The comprehensive economic survey of the citrus groves in the Acre Sub-District, commenced in 1935, was concluded in June and a commission was afterwards appointed to study the report and make recommendations to Government arising out of it. The commission had not completed its task at the close of the year.

COMMITTEES.

Numerous subjects of importance to the citrus industry were discussed by the several standing and special committees. The following number of meetings were held, all of which were attended by the Chief Horticultural Officer, and many by the Chief Fruit Inspector. The Chief Horticultural Officer is chairman of the Citrus Fruit Committee, Citrus Fruit Advertising Committee, and Citrus By-Products Sub-Committee; and the Senior Horticultural Officer is secretary of the Citrus Fruit Committee and the Citrus By-Products Sub-Committee; and Mr. Bechinsky, secretary of the Citrus Fruit Advertising Committee.

	Number of Meetings.
(a) Citrus Fruit Committee	8
(b) Citrus Fruit Advertising Committee	5
(c) Citrus By-Products Sub-Committee	6
(d) Sub-Committee on Citrus Transport	3
(e) Sub-Committee on Citrus Marketing	3
(f) Committee to consider the Rural Property Tax on Citrus Plantations	9

The following is a brief account of the most important matters dealt with by the Citrus Fruit Committee:—

Rural property tax on citrus groves was considered to be too high and a reduction was requested. The matter was fully investigated by a special committee of Government officials, including the Chief Horticultural Officer, appointed by His Excellency the High Commissioner, and recommendations made to Government.

A sub-committee of the Citrus Fruit Committee was appointed to consider the present position of the citrus by-products industry and its future possibilities.

A revision of the Citrus Fruit Export Rules was undertaken with the assistance of the Citrus Fruit Committee, and it was later decided to recommend to Government to enact legislation for the purpose of compelling citrus packing houses, places and their surroundings being kept clean of rotten and mouldy fruit.

Timber, box wood, nails and hoops used in the make-up of citrus cases are at present subject to duty, and a recommendation was made to Government to allow relief in the form of drawbacks. This was agreed to by Government in principle but not brought into effect owing to the financial situation.

The recommendation of the Citrus Fruit Committee to impose a high duty on imported apples and pears is under consideration by a special committee appointed by the General Agricultural Council.

Numerous items dealing with the citrus fruit trade with Poland, France, Denmark, Holland and Canada were considered.

CITRUS FRUIT ADVERTISING.

As a consequence of the poor crop in 1935/36 the estimated revenue based on a fee of 3 mils per case was not realised and the citrus advertising fund had a debit balance of £P.7,400 at the commencement of the 1936/37 season. A programme was arranged, which included advertising in the United Kingdom, continental countries, India, Palestine and Syria, on a total scale similar to that of last year and based on an expenditure of £P.20,000.

In addition, the repayment of all debts to Government was arranged. The advertising fee was raised from 3 to 3½ mils on the 1st September, 1936, to allow of this being done.

An honorary advisory committee of fruit brokers and salesmen was appointed to assist the contractor for the advertising of Palestine citrus fruits in the United Kingdom.

The actual expenditure for the year according to countries is shown in Table C.

On account of the high percentage of non-exportable fruit available for local consumption the programme for advertising in Palestine was intensified, and advertising by means of the Palestine Broadcasting Service was undertaken for the first time.

The advertising propaganda in all countries was satisfactorily carried out.

III. FRUITS OTHER THAN CITRUS.

DECIDUOUS FRUITS INCLUDING FIGS.

Heavy rains in the winter of 1935/36 followed by mild spring weather and the absence of Khamsins proved favourable to the production of a good crop of all kinds of deciduous fruits. Apricots and peaches were particularly productive although heavily attacked by Mediterranean fruit fly. Normal marketing methods for all summer fruits were impossible during the disturbances and poor returns on the whole were realised in consequence. The effect of the disturbances was also noticeable in a lack of interest in fruit planting.

OLIVES.

The olive crop was rather poor throughout the country and was as usual severely damaged by the olive fruit fly (*Dacus oleae*).

BANANAS.

Good prices for bananas and mild weather conditions during recent years were an incentive to the establishment of new plantations in the coastal plain i.e. Ras el 'Ein, Sarona, Wilhelma, Herzlia and Tel Mond. In Jericho low prices prevailed during the disturbances due to lack of transport facilities, and bananas were at times practically unsaleable. Cold weather during January, 1937, severely damaged bananas in all parts of the country including Jericho; the damage being variously estimated as likely to affect the 1937 crop by 25 to 40 per cent. The demand for suckers for planting early in 1937 was great, and the price prevailing at Wilhelma and Herzlia rose from 25 to 50 mils each. In Jericho prices at the plantation increased slightly and banana suckers were sold at 25-30 mils each.

VINES.

From a production point of view the grape season was good, but returns were extremely poor due to marketing difficulties. Only 149 tons of grapes were imported from Trans-Jordan in 1936/37 as compared with 3,776 in 1935/36. This was mainly due to the difficulties of transport during the disturbances. Two demonstrations in raisin making were undertaken in the principal vine districts as propaganda for the utilisation of the crop as a means of alleviating the marketing situation. Samples were submitted to the Imperial Institute. The report received was to the effect that the raisins were well prepared, of good colour and in good condition, though somewhat mixed. They were considered to have thick skins and large stones, and due to competition with other raisins, the trade was of the opinion that it would be difficult to market them in the United Kingdom at a profitable price.

Phylloxera continued to spread and propaganda was undertaken to induce people to substitute the vines with plants grafted on American stocks of which a large number were raised in Government nurseries.

A considerable number, about 407,000 grafted vines, were raised by private nurseries. The varieties most favoured were Muscat de Hambourg, Chasselas doré, Dattier de Beyrouth and Madeleine Oberlin. They were mostly grafted on 41B, R × R 3309, A.R.G. No. 1 and Rupestris du Lot.

More interest was given to wine production in 1936/37. New areas were planted out to wine varieties and about 2,890 tons of wine grapes were used in the wine cellars.

IV. HORTICULTURAL EXPERIMENTAL STATIONS.

Nine Horticultural Stations were maintained, viz. Farradiya, Nablus and 'Ein 'Arrub in the hills; Majdal, Sarafand and Acre in the plains; and Jericho, Farwana and Beisan in the Jordan Valley below sea level. Details of the establishment and the nature of the work conducted at these Stations are given in my Annual Report for 1935/36 and are therefore not repeated here. The work of the stations during 1936/37 was restricted largely to consolidation and to the collection of data. Records of the growth of deciduous trees were taken for the second year in succession at Acre, Nablus, Majdal, Farradiya and 'Ein 'Arrub. It is hoped that the data collected will, in course of time, be of assistance in determining the suitability of stocks and scions for the varying conditions of the country. There is generally a marked increase to be recorded in the growth of the trees. The citrus trees at Sarafand were measured for the first time.

Seeds of plants new to the country and of possible interest as cover crops or as temporary windbreaks, were introduced from Trinidad :— *Canavalia ensiformis* and *C. gladiata* made a dense cover throughout the summer at Acre. *Tephrosia candida* grew well at Acre and Sarafand, suffered from cold during the winter but recovered in the spring. *Crotalaria anagyroides*, *C. usarmoensis* and *C. striata* made good growth, but do not appear to be an improvement on *C. juncea*, which has proved a useful temporary windbreak at the plain and Jordan Valley stations for several years.

The successful growth of pigeon peas in Jericho lead to the introduction of two selected strains, viz. Lasiba and Tobago, from Trinidad. These made remarkable growth at Sarafand and Acre, but flowering was too late to allow of seed production in any quantity before the cold weather set in. In Farwana better results were obtained and an excellent crop was ripening in March; it would apparently have distinct possibilities as a crop plant for the Jordan Valley.

Nurseries for the distribution of plants were maintained at the Horticultural Stations of Acre, Farradiya, Majdal and Jerusalem. Details are given in the following table as to the number of plants raised and distributed :—

	Number raised	Number distributed		
		Free	Sold	Total
Vines	100,500	22,299	71,019	93,318
Fruit trees (mostly deciduous)	89,233	7,660	53,745	61,405
TOTAL	189,733	29,959	124,764	154,723

There were 2,098 applications for trees received from the general public; altogether 326,214 vines and 275,915 fruit trees were requisitioned. A proportion of the number of trees applied for was allotted to each application bearing the recommendation of a field officer; many persons failed to collect the trees allotted to them. A number of suggestions have been received as to the cause of this state of affairs, included amongst which were the poor financial condition of applicants, lack of preparation of the land due to the disturbed conditions of the country followed by a long period of wet weather during the main planting season, and failure to get all the trees applied for.

Some progress has been made in the production of stocks for budding at Acre. The 10 dunams of vines of American stock varieties produced sufficient canes for 15,000 grafts. These canes were of excellent quality and superior to the imported ones. Those varieties which made the most satisfactory growth were Mourvèdre × Rupestris 1202, Aramon Rupestris Ganzin No. 1, Rupestris du Lot and Chasselas × Berlandieri 41B.

The stooling method of propagating root stocks has only been partially successful, as although there was no difficulty in getting root formation, many of the resultant stocks were much too thick for nursery purposes. Propagation of apple and pear stocks by cuttings gave poor results, the best obtained being 43 per cent. with *Cydonia vulgaris*. Propagation by seeds has only in a few instances, notably *Pyrus syriaca*, *P. serotina* and *P. ussuriensis*, given satisfactory results.

The arrangements commenced last year for a scheme of rotation, so as to give the nursery land a rest once in three years, has been continued.

A heavy infestation of a leaf-eating caterpillar (*Prodenia litura*) appeared in the vine nursery at Acre, and was controlled by dusting with various proprietary poisons. Nematodes again caused trouble in the almond nursery and many infected trees had to be discarded. Khashabi stocks were attacked by scale (*Parlatoria oleae*) and young grafted olives by a moth (*Prays oleellus*). Control was exercised respectively by a 2 per cent. Alboleum spray and by 1/600 nicotine sulphate.

A device designed by Mr. Z. Meytes, Station Superintendent, Acre, for lifting nursery trees was tested and found suitable for uprooting at least the small trees and vines. If finally adopted for general use it should result in considerable economy and allow of the work being more expeditiously undertaken.

ACRE HORTICULTURAL STATION — AREA 200 DUNAMS.

The area was extended by 20 dunams to 200 dunams to allow of a scheme of rotation for nursery work.

Citrus Grove—25 *dunams*. Upkeep of the grove consisted of shaping and supporting the trees, whitewashing the trunks, discing 6 times, sowing, growing and turning under of lupins, eight irrigations during the period end of March to early November by applying 45-50 cubic metres of water per dunam at each irrigation, and manuring by applying to each tree 300 grammes of nitrate of soda or nitrochalk per tree twice during the summer and 45 kgs. of farmyard manure mixed with 3 kgs. of chicken manure. The trees responded well, but were too young to fruit.

Pest control for scale insects and red spider consisted of spraying with 2 per cent oil emulsion (Volck) and dusting with sulphur respectively.

Orchard—30 *dunams*. The orchard was disced three times during the summer and ploughed in October and February for sowing and covering lupins; 15 kgs. of superphosphate and 10 kgs. of potash per dunam were applied with the seed. Irrigation was done by the furrow method in June and August. Trees suffering from chlorosis were each given 75 grammes of iron sulphate before watering. Most trees made satisfactory progress and some fruited for the first time. Certain varieties of plums, viz. Excelsior and Akasumon from India; Terrel and McRea from Florida grew vigorously. Peasgood Nonsuch, Kaiser and Gaza apples made very strong growth.

Extensions of the planting to other stocks have been made in the case of the following :—

Plums : Beauty, Climax, Santa Rosa, Satsuma on Brompton.

Apples : Banana on Malus communis and Khashabi on Doucin.

New introductions were as under :—

Florencia plum on Myrobolan (Italy).

Tally and Darawashi apples on Khashabi (Syria).

Advance and Thales loquats on loquat (U.S.A.).

Fuerte, Nabal and Puebla avocadoes—stock unknown (U.S.A.).

Rose of Peru and Shami grapes on 41B (U.S.A. through Qiryat Anavim and Syria respectively).

Vineyard. The 10 dunams of table grapes, mostly grafted on Rupestris du Lot and Chasselas × Berlandieri 41B, have progressed satisfactorily and some have begun to bear. The Pearl of Czaba ripened first on June 5th, 12-14 days earlier than the well-known early variety Madeleine Oberlin, the berries being full, firm, and of good flavour with distinct possibilities for export purposes. Two other attractive varieties which fruited were Sicilian introduced from Italy and Queen Elizabeth from Hungary.

Cultivation in the vineyard consisted of one ploughing, three discings, and hoeing for the eradication of weeds. Lupins were sown and ploughed under; 15 kgs. of superphosphate

and 10 kgs. potash per dunam being applied with the seeds. Water was applied in furrows three times during the summer, in May, July and August, at the rate of 60 to 65 cubic metres per dunam. Pruning was undertaken during the months January-March according to the variety. The vines were mostly trained on the first wire, others on the second wire; no thinning of shoots was undertaken.

Windbreaks. The permanent windbreaks of *Cupressus pyramidalis; C. horizontalis, C. arizonica, Grevillea robusta, Ficus nitida* and *Poinciana regia* are making excellent growth. *Sesbania aegyptiaca* proved a very efficient semi-permanent, low windbreak, but suffered complete defoliation during the winter. Sum hemp (*Crotalaria juncea*) was again useful for protection during the summer months.

JERICHO HORTICULTURAL STATION.

This station is in good condition, the citrus grove has considerably improved and the dates, annonas, loquats and vines have grown well. The cold spell of winter caused considerable damage to bananas and papayas but the former made a good recovery in spring. Mangoes, avocadoes and kakis are definite failures in Jericho; probably owing to the dry climate.

Two new banana experiments were planted for the purpose of studying :—

(a) Distance of planting 3 metres × 3 metres versus 3 metres × 1½ metres.

(b) Local method versus maiden suckers.

(c) Desuckering versus non-desuckering.

(d) The use of peat moss at the time of planting versus common method of planting without peat moss.

The results of the experiment commenced in 1935 for desuckered plants versus non-desuckered plants, were in favour of desuckering. The yield per dunam was 2,226 kgs. per dunam for the former, and 1,668 kgs. for the latter. In the desuckered areas, the average weight per bunch was 15 kgs. and the average number of hands per bunch 8, as compared with 10 kgs. per bunch and 7 hands per bunch in the non-desuckered area.

The vineyard was extended by planting some 430 vines of early varieties of table grapes, chiefly Pearl of Czaba, Chasselas doré, Salti and Sultanina. The old vines were trellised.

In the citrus grove, the experiments recorded in previous reports, show :—

(a) *Distance of Planting.* The trees planted 5 × 5 metres gave the highest yield, i.e. 169 fruits per tree; 4 × 4 metres yielded 133 fruits per tree; and 3 × 3 metres 27 fruits per tree; the 7 × 7 metres gave 90 fruits per tree.

(b) *Duty of Water Experiments.* Irrigation experiments were continued for the sixth year. The intervals of irrigation remained at 10 (Plot A), 14 (Plot B) and 21 days (Plot C). The results showed that although the girth was greatest in Plot C, viz. 4 cms. measured at 20 cms. above ground, as compared with plot B—3.75 cms. and plot A—2 cms., the yield was higher in A, giving about 198 fruits per tree as compared with 163 fruits per tree in plot B and 131 fruits per tree in Plot C.

(c) *Optimum Duty Experiments.* The quantity of water applied in each of the three plots was at the rate of 3 m³, 2.5 m³, and 2 m³ per dunam per day respectively. No noticeable difference is to be recorded in the increase of girth or in the quantity of fruit picked.

(d) *Stock Experiments in Citrus.* The difference in the development of Shammuti on sweet lime, sour stock and rough lemon is more noticeable as the trees develop. Those on sweet lime are developing poorly, the leaves yellowing; the measurement of girth (20 cms. above ground) is 32.1 cms. and the yield about 148 fruit per tree. Shammuti on sour stock are developing well, the measurement of girth was 36 cms. and fruit production 95 per tree. Shammuti on rough lemon showed the best development; the measurement of girths is 42 cms., and the yield 140 fruits per tree. All Shammuti budded on grapefruit stocks died.

In the papaya variety plot, the "Solo" from Honolulu produced inferior fruit; the "Bi-sexual" produced fruit, large in size, irregular in form and poor in quality; the "Prolific" produced fruit medium in size, regular in form and of good keeping quality; the "Mammie" from Honduras has not fruited; the "Mme. Russel", "New Era", and "Cayenne" are continuing to produce good fruits.

Loquats budded on quince do not develop in Jericho, the loquat itself seems to be a better stock.

Pomegranate fruits suffered considerably from the pomegranate butterfly.

NABLUS HORTICULTURAL STATION—100 DUNAMS.

The work in the orchard was mostly of a routine nature and consisted of staking, pruning, shaping and spraying the young trees and in three ploughings, four cultivations, and hoeing the land. Manurial applications of organic manure, 10 kgs. per dunam, were given in the fall. The permanent windbreaks of *Cupressus spp.* have made good growth and two additional rows of *C. pyramidalis* running north to south, were planted.

The trees generally made good growth, but the sudden failure during early spring of 6 plums, 12 almonds, and 9 apricots on almond stocks, 2 apricots on apricot stock and 16 cherries on Mahaleb stock, have to be recorded. The cause of death was attributed by the Plant Pathologist, Rehovot, to unsuitability of the soil. It may be of too retentive a character for almond and Mahaleb stocks.

'EIN 'ARRUB HORTICULTURAL STATION.

The general condition of the orchard is fair, the trees planted out last season suffered from drought. The apricot and peach plots made the best progress. All trees were pruned and shaped, the land was ploughed four times and cultivated three times; organic manure was applied in the autumn at the rate of 8 kgs. per tree.

A number of new varieties of trees were planted out :— seven of apple, eight pears, seven cherries, three quinces, nine plums and three peaches.

A new area was prepared as a vineyard and it was planted with 12 varieties of grapes on two varieties of stocks. The varieties are :— Flame Tokay, 'Einuni, Sultanina, Marrawi, Dabuqi, Muscat de Hambourg, Emperor, Servan, Ohanez, Balluti, Shami and Halawani on Rupestris du Lot and Chasselas Berlandieri 41B.

MAJDAL HORTICULTURAL STATION—34 DUNAMS.

The work in the orchards consisted of two ploughings, 10 discings and three irrigations. Each tree was given 250 grammes of sulphate of ammonia in May and 30 kgs. of stable manure in the autumn. They were pruned in winter and sprayed with 1 : 10 lime sulphur spray. Generally speaking apple budded on Khashabi showed the strongest development.

A number of insect pests attacked the trees and fruit :— apples by the borer (*Zeuzera pyrina*), by caterpillars (*Lymantria destituta*) and scales (*Parlatoria oleae*). They were treated with Paradichlorbenzene, Derimac, and "Hadarol" oil emulsion (2½ per cent.) respectively. Some of the twigs of plums were attacked by bark beetles (*Eccoptogaster amygdali*). Almonds were attacked by *Anarsia lineatella* and treated with 1/1200 of nicotine sulphate.

The young citrus grove has developed fairly well, but the trees have suffered from wind despite the temporary windbreaks. They were sprayed with Alboleum 2½ per cent. for the purpose of destroying red scale and dusted with sulphur for red spider.

The following additional varieties of trees were planted in the orchards :—

Avocadoes : Fuerte, Nabal and Puebla.
White Sapota : Suebella.
Loquats : St. Michel on quince.
Annona : Whaley.
Persimmon : Fuyugaki and Hachiya.

In the citrus grove a number of new varieties were planted :—

Grapefruit : Thompson, Walters.
Tangelo : Nocatee.
Oranges : Washington Navel, Valencia Late and Ruby Blood.
Lemons : Bernia.
Mandarines : Kaula, Loose Jacket, Ellendale, Yusef Effendi and King.

The vineyard made good development and was trellised. The early European varieties of vines were trained low; the late European and the local varieties trained high. The vines were attacked by *Oidium*.

FARWANA HORTICULTURAL STATION.

This was the only station that suffered any serious damage during the disturbances of 1936, a number of citrus trees being uprooted in the experimental blocks. It was therefore necessary to replant the entire experiment with stocks of sour orange and rough lemon to be budded in situ; no changes were made in the layout as given in my last report. The cold spell of December severely damaged the banana plantation and it had to be replanted; opportunity was taken to commence a comparative trial of two kinds of planting material, using maiden suckers and untrimmed suckers as in common use locally.

In the vineyard, "Pearl of Czaba" is worthy of special mention both as regards its early ripening and general development. The vines were trained on the Cordon system.

The pickling variety of olives has grown well.

The windbreaks of *Cupressus spp., Ricinus communis, Crotalaria juncea* and *Cajanus indicus* grew well and gave good protection to the trees and plants.

BEISAN HORTICULTURAL STATION.

As recorded in previous reports the soil and water at this station are unsuitable for most fruit trees. Vines, olives, and carobs are, however, developing fairly well, but the citrus, with the exception of Washington Navels are in poor condition.

FARRADIYA HORTICULTURAL STATION.

The orchards are developing well; all the plots were sown with horse beans, which were ploughed under in March. Pruning of trees was completed in February; opportunity being taken to head a number of apples which were rather exposed to sweeping winds.

Experimental pruning of trees in autumn resulted in their coming into leaf and blossom about a week earlier than those of the same variety pruned in winter; in Majdal station there were no noticeable differences from pruning in autumn. All trees were sprayed with 10 per cent. solution of lime sulphur and the trunks whitewashed in March. A number of vacancies in the plum, peach and apple plots were filled.

All vines were pruned in accordance with the plans set out in the previous report—one third being tied to trellises, one third to upright posts and the remainder allowed to trail on the ground. Additional windbreaks of cypresses and pines were planted.

CITRUS DEMONSTRATION STATION, SARAFAND.

The citrus groves received regular cultivation, hoeing and irrigation during the summer when lack of moisture was evident; the irrigation period varying between 27 and 51 days. The furrow system was adopted throughout the station except in the case of the newly planted trees and in part of the irrigation experiment. Green cover crops were not very successful, due to excessive rain and cold weather during the winter months. Except for an attack of red spider which was treated by dusting with sulphur, little trouble from insects was experienced. The trees suffered some defoliation from the high and cold winds of December but have since recovered.

The experiment to test budding on sweet lime and sour orange stocks of different ages, referred to in last year's report was commenced. One year old stocks were planted in spring 1936 and the budding treatments comprise :—

(a) Budding in autumn 1936.

(b) Budding in spring 1937.

(c) Budding in autumn 1937.

Many trees in the distance of planting experiment, Shammuti on sweet lime, were found to be heavily infested with Xyloporosis, and in accordance with the advice of the Plant Pathologist, Rehovot, all trees, with the exception of those which were too thin, were inarched with two sweet lime stocks.

A small plot of Shammuti on Baladi stocks was planted and budwood of the Perrine lemon was successfully introduced in thermos flasks from Trinidad. An experiment was instituted, with the advice of the Irrigation Officer to test furrow versus basin methods of water application. In the low duty test water is applied at 45 day intervals at the rate of 2 m^3 per dunam per day, and in the high duty at 35 day intervals at the rate of 2.57 m^3.

A collection of 10 varieties of persimmons, 4 of avocadoes, 3 of mangoes, annonas, eugenias, loquats and litchie were planted around the buildings.

Permanent windbreaks and avenues grew well. *Poinciana regia* suffered severely from the cold weather. Lasiba and Tobago pigeon peas grew to a hight of 3 metres and *Tephrosia candida* to 1½ metres during the summer. They subsequently suffered severely from frost; the Lasiba pigeon pea variety being most resistant.

V. HORTICULTURAL DEMONSTRATION PLOTS.

Supervision of the horticultural demonstration plots was difficult during the summer months; nevertheless they are beginning to show marked progress in most cases. Those in the Beersheba area are particularly backward and it appears most unlikely that fruit growing can be developed unless water is available. Twenty-nine plots were maintained during the year as follows: vines 5, olives 5, deciduous fruits 18, and dates 1.

VINES. The vineyard at Ramallah is prospering well. That at Tarshiha had to be replanted. Those at Safsaf, Silat el Harithiya, and the wireless station are developing slowly. A number of vines were interplanted in the demonstration plots of Sinjil, Lubya, Zakariya and 'Arraba.

The application of fertilisers on vines at Hebron was accompanied by good results. After treatment for three years 150 fertilised vines have yielded 4,200 kgs. of grapes as compared with 2,505 kgs. from 150 untreated vines in the same vineyard and subjected to the same cultural treatments. The manurial treatment consisted of 5 kgs. of stable manure, 100 grammes of superphosphate, 60 grammes of potash and 200 grammes of sulphate of ammonia per vine. It was calculated that according to these results a dunam of fertilised vines gave a net return of £P.2.814 mils per year more than the untreated.

OLIVES. The results of the application of manures and fertilisers on the yield and quality of olives at Qalunya show clearly the benefit to be derived therefrom. The effect on the quality according to the Government Analyst indicates that there is a marked increase in proteins and fats, further study is, however, required. The spraying of olive trees with lime-sulphur and formalin, and of trunks and branches with 15 per cent. of ferrous sulphate, have given good results. At Hulda, the top working of 200 olive trees, 25 years of age, to better varieties has been very successful. After three years the heads have attained a size equivalent to that before grafting took place and a heavy blossom gives hope for a good crop for the coming season.

DECIDUOUS FRUITS. Work in the eighteen deciduous plots was continued. In some, many of the trees had to be replanted, this was particularly the case in the four plots in the Beersheba Sub-District where conditions do not seem to be favourable for fruit growing without irrigation.

DATES. The date demonstration plot at Kinneret has done well and most of the offshoots have started to grow. A number of offshoots were infested with scale and sprayed with an oil emulsion. The area was sown with green manure in fall and ploughed under in February. One hundred date offshoots, mostly Deglet Nur, were introduced from California. The consignment came in winter, and was carefully tended on arrival in a closed shed at Kinneret. It is hoped that about 60 per cent. of the offshoots will succeed.

A consignment of fifty offshoots of Hayani, Zaghlul, Bint Aysha, Siwi, Sammani, Amri and Amhat were received from the Ministry of Agriculture in Egypt.

VI. WORK OF HORTICULTURAL FIELD OFFICERS.

At the commencement of the year another Horticultural Instructor was appointed, making four available for the entire country; they are stationed at Acre, Jaffa, Nablus and Jerusalem. Their work has consisted principally of :—

(a) Visits to groves, villages, and settlements for the purpose of giving general advice to fruit growers as to choice of sites for planting, choice of trees, manuring, fertilizing, pruning irrigation, drainage, pest control, etc.

(b) Estimation of damages to groves and orchards during the disturbances, which consisted of :—

	Number of trees damaged or destroyed
Citrus trees	131,215
Deciduous trees	35,150
Miscellaneous trees	3,495
Vines	34,643
TOTAL	204,503 trees

(c) Survey of damage done to citrus groves during winter storms, and to banana plantations by frost.

(d) Upkeep of demonstration plots.

(e) Assistance with the distribution of fruit trees grown in Government nurseries.

(f) Numerous reports and valuations arising out of applications for relief from payment of Rural Property Tax on citrus, bananas and olives.

(g) Reports on applications for loans under the hill development scheme.

Special work undertaken by these officers was the taking of growth measurements of trees at the horticultural stations, and the collection of data for the Acre and general citrus survey, and extension work in the Acre citrus groves.

The Viticultural Officer was stationed in Jerusalem and carried out advisory duties throughout the country. His activities were, however, curtailed during the disturbances, but he was able to undertake a close study of the composition and condition of an area of 3,450 dunams of vineyards. The study revealed that the majority of vineyards in settlements in the southern coastal plains are raised from cuttings. Out of a total of 835,826 vines, 539,034 were found to be ungrafted; of the grafted the majority were on Khalili stock, a local vigorous stock which is not resistant to phylloxera. The most favourable American stock is Chasselas × Berlandieri 41B followed by Rupestris du Lot and Aramon Rupestris Ganzin No. 1. The Viticultural Officer was also largely responsible for the inspection of private plant nurseries for purposes of registration and licensing. He also arranged a demonstration in sericulture amongst the public. The only response was the production of about 30 kgs. of good quality cocoons, and it must therefore be regarded as a failure due to the impossibility of producing saleable quantities.

VII. RESEARCH.

CITRUS FRUIT WASTAGE.

Dr. Tomkins' report on his investigation into the possibilities of gas storage of oranges conducted in March, 1936, was received in September, 1936. His chief recommendation was to the effect that further research into the heavy incidence of fruit wastage was necessary. Subsequent discussions with the Jewish Agency Agricultural Research Station, Rehovot, and correspondence with the Department of Scientific and Industrial Research, England, has been conducted and at the close of the year a complete scheme covering one years investigation from grove to market, and including a study of conditions on board ship, had been elaborated. Financial provision and the co-operation of the various authorities are being sought.

TRIALS WITH SHIRLAN FOR PREVENTING WASTE IN ORANGES.

Two small experiments were undertaken in March for the purpose of comparing the effect of fruit treated with a 1 per cent. solution of Shirlan dipped for one minute, with untreated fruit and with injured treated fruit, injured untreated fruit, and with samples dusted with mould spores and others left undusted. The results at the end of the 25th day are shown below. Heavy wastage particularly in the case of the injured samples was 100 per cent. in the first week.

	Dipped in Shirlan		Untreated	
	1st Test	2nd Test	1st Test	2nd Test
Fruit undamaged	Nil	Nil	12%	17%
Fruit with damaged oil cells	52%	17%	100%	90%
Fruit with damaged oil cells and infested with mould spores	100%	86%	100%	100%

STUDY OF STOCKS FOR DECIDUOUS TREES.

The study of almond seedling stocks was continued at 'Ein 'Arrub. Many varietal differences are to be noted, which will constitute a drawback to the development of a uniform almond stock from seed, a requisite necessary for rocky lands where it is advisable to sow the seed in situ. In the Acre nursery further trouble with nematodes on almonds was experienced.

Studies were continued on Khashabi stocks, for pome fruits, and "Qarassya" and "Suwaydah" for the stone fruits. The Khashabi stock appears to include three definite types varying in morphological characters. Two very distinct types of Qarassya were observed differing in colour of the bark, mode of suckering, arrangement of the leaves, time of coming into leaf and kind of fruit. In the Suwaydah, three types are noticeable, distinguished principally by coming into leaf at different periods and by mode of growth.

An introduction of Indian stocks was received from the Punjab and are being propagated at Acre. These were as follows: Apple "Pala", Crab Apple, Pear "Slegal" and Wild Pear.

The usual mounding and etiolation method used in the vegetative propagation of deciduous stocks, has, at Acre Horticultural Station, produced many stocks much too thick for propagation purposes. Two methods are being tried for the purpose of producing thin shoots :—

(a) Growing the mother plants in nurseries in the mountainous areas where the development is slower,

(b) Growing mother plants in the plain nurseries and pruning them hard back during February, April and June for the purpose of checking their development.

DATES.

A study of the effect of various factors on the rooting of offshoots was carefully carried out with the following preliminary results :—

(a) *Weight of Offshoots.* Offshoots 5 kgs. in weight gave 87.5% success, those of 10 kgs. 76.46% and of 1 kg. only 29.5%.

(b) *Shade.* Offshoots placed in shaded beds gave no better results than those unshaded.

(c) *Disinfecting of Offshoots.* Dipping and spraying offshoots influences the precentage of success.

	Percentage of success.
Offshoots dipped in amonium copper carbonate solution	75%
Offshoots dipped and sprayed with amonium copper carbonate solution	79.19%
Offshoots dipped in Ceresan	50%
Offshoots dipped and sprayed with Ceresan	66.6 %
Offshoots undipped and non-sprayed	30%

(d) *Heating of Soil*. Experiments were carried out in propagation beds heated by electric soil cables. Two beds were not heated and gave 72% success, one was heated to 30°C and kept constantly at this temperature during the rooting period, and gave 90% success, and the other was heated to 30°C for only one month after planting and gave 76.2% take. Further experiments in these factors are continuing.

WINDBREAKS.

A study of the effect of cypress windbreaks on the quality and quantity of fruits on trees protected and non-protected was instituted. It revealed that the protected area showed 4.4 per cent. of dropped fruit, the partially protected 6.4 per cent. and the unprotected 8.5 per cent. The percentage of culls, and grades of fruit are shown in the following table:—

	Protected Plot	Semi-Protected Plot	Non-Protected Plot
TOTAL CROP	20,687 oranges	20,992 oranges	20,772 oranges
Percentage of dropped fruit	4.4%	6.4%	8.5%
Percentage of culls	13.7%	19.7%	27.4%
1st grade fruit	47.1%	26.9%	16.4%
2nd grade fruit	18.4%	23.2%	17.2%
3rd grade fruit	16.4%	23.8%	30.5%

The results show that there is an appreciable gain in first quality fruit.

VIII. CONTROL OF PLANT NURSERIES.

The control of plant nurseries which was commenced last year in order to stimulate and improve plant production, has operated successfully; 78 nurseries were inspected of which 68 were approved for registration and 63 were licensed.

The distribution of the nurseries according to districts is shown below:—

	Recommended for licensing	Not recommended for licensing	Licenses issued
Northern District	34	8	32
Southern District	32	2	29
Jerusalem District	2	—	2
TOTAL	68	10	63

IX. FINANCE.

Statements of expenditure and revenue are shown in Tables G and H.

R. O. WILLIAMS
Chief Horticultural Officer.

TABLE A.

STATEMENT SHOWING EXPORT OF CITRUS FRUIT TO VARIOUS COUNTRIES, DURING THE 1936/37 SEASON — ENDED 3.6.37.

DESTINATION	ORANGES	GRAPEFRUIT	LEMONS	OTHERS	GRAND TOTAL
	Boxes	Boxes	Boxes	Boxes	Boxes
United Kingdom	6,520,803	1,050,837½	34,347½	4,857	7,610,845
Holland	549,213½	53,541	1,875	89	604,718½
Germany	244,817	74,500	11	4	319,332
Sweden	284,899	25,224	102	632	310,857
Poland	279,003	24,747	98	3,955	307,803
France	191,387	87,440	1,959	—	280,786
Belgium	193,500	64,824	108	53	258,485
Rumania	178,305½	16,451	24,886½	125	219,768
Czechoslovakia	146,589	18,948	361	314	166,212
Norway	141,891	16,436	—	—	158,327
Finland	70,836	3,795	—	85	74,716
Denmark	65,001	8,217	150	200	73,568
Yugoslavia	47,778	4,017	30	5	51,825
Switzerland	22,611	21,673	83	—	44,367
Bulgaria	35,412	526	65	3	36,006
Austria	25,755	6,167	200	42	32,164
Latvia	27,853	2,653	—	—	30,506
Russia	27,509	2,014	—	—	29,523
Esthonia	13,412	78	—	—	13,490
Hungary	3,901	3,849	—	—	7,750
Egypt	3,156	3,391	99	—	6,646
India	555	872	23	—	1,450
Greece	1,304	1	—	—	1,305
Syria	1,055½	2	1	—	1,058½
Hejaz	592	2	4	—	598
Ceylon	172	221	74	—	467
Argentine	100	200	—	—	300
Singapore	—	175	30	—	205
America	—	—	160	—	160
Sudan	50	55	—	—	105
Turkey	43	56	—	4	103
China	45	50	5	—	100
Lithuania	10	10	—	—	20
Destination not given (Transit via Port Said)	89,350	51,074	6,120	—	146,544
TOTAL	9,166,903½	1,542,046½	70,792	10,368	10,790,110

TABLE B.

MONTHLY PRICES REALISED FOR CITRUS FRUIT AS FROM 1ST NOVEMBER, 1936, TO 30TH APRIL, 1937, IN THE UNITED KINGDOM MARKETS.

ORANGES.

Month	120/128 Count	140/144 Count	150/160 Count	180 Count	210 Count	240 Count
December	8/3 — 10/3	8/9 — 12/6	9/6 — 12/6	9/- — 13/-	9/9 — 15/-	10/6 — 15/3
January	7/- — 9/9	7/- — 9/6	8/- — 10/6	8/3 — 11/6	8/- — 12/9	8/- — 13/6
February	4/- — 9/6	4/6 — 10/-	5/3 — 11/-	6/- — 11/3	6/- — 11/-	4/3 — 11/-
March	1/- — 11/6	4/- — 11/-	1/6 — 13/3	1/6 — 14/-	1/- — 16/-	2/6 — 15/-
April	6/6 — 10/-	7/- — 10/9	7/6 — 12/-	8/- — 14/-	8/9 — 14/3	8/- — 14/9

GRAPEFRUIT.

Month	64 Count	80 Count	96 Count	112 Count	126 Count
November	7/3 — 13/-	8/- — 13/-	7/6 — 11/6	7/- — 10/9	7/- — 10/9
December	8/6 — 13/-	8/- — 12/6	8/6 — 11/6	8/- — 11/6	9/- — 12/6
January	7/- — 11/6	8/6 — 13/-	8/6 — 12/6	9/- — 13/-	9/- — 13/-
February	6/9 — 12/3	6/6 — 12/3	7/6 — 13/6	7/3 — 12/6	8/6 — 11/-
March	3/- — 9/6	6/- — 12/6	6/3 — 12/6	4/- — 10/6	3/- — 11/6
April	6/3 — 11/6	7/3 — 13/6	8/- — 15/-	7/- — 13/6	7/- — 13/6

LEMONS.

Month	Price per Box
August	24/- to £3.
November	7/- to 9/9

TABLE C.

CITRUS FRUIT ADVERTISING, 1936/37 SEASON.

	Amount allocated to advertising for 1936/37
	£P.
United Kingdom	11,024
Holland	1,000
France	600
Rumania	200
Poland	1,500
Belgium	1,000
Sweden	500
Norway	500
Czechoslovakia	600
Switzerland	500
Finland	200
Hungary	140
Austria	200
India	750
Palestine	1,205
Syria	138
Departmental charges	200
Telegrams and sundries	160
TOTAL	£P. 20,417

TABLE D.

TREES AND VINES RAISED AND DISPOSED OF DURING 1936/37.

KIND	Number raised	Number sold	Number issued gratis	Number replanted	Number destroyed
Apples	31,490	21,087	1,584	8,201	618
Pears	9,846	5,018	1,037	3,223	568
Quinces	505	244	206	44	11
Plums	21,919	12,002	1,312	6,861	1,744
Apricots	2,076	1,857	149	—	70
Peaches	2,133	1,788	285	38	22
Cherries	1,347	1,047	204	58	38
Almonds	885	659	42	53	131
Olives	1,863	1,617	157	32	57
Figs	1,071	610	301	100	60
Loquats	328	82	—	246	—
Pomegranates	3,037	963	214	1,676	184
Walnuts	588	279	194	87	28
Citrus budded	3,905	2,300	266	1,339	—
Citrus seedlings	4,156	2,563	1,450	143	—
Sub-Tropical	2,785	831	44	264	1,646
Others	1,299	798	215	211	75
TOTAL	89,233	53,745	7,660	22,576	5,252
Vines	100,500	71,019	22,299	2,943	4,239

TABLE E.

DISTRIBUTION OF TREES AND VINES DURING 1936/37.

KIND	FREE ISSUE						SOLD	GRAND TOTAL
	Schools	Police and Military Posts	Departmental Plantations	Government Properties	Private	Total		
Vines	9,307	130	4,581	635	7,646	22,299	71,019	93,318
Budded fruit trees	198	92	4,177	386	—	4,853	46,403	51,256
Unbudded fruit trees	14	158	690	197	32	1,091	2,479	3,570
Citrus budded	50	52	—	164	—	266	2,300	2,566
Citrus seedlings	100	—	—	—	1,350	1,450	2,563	4,013
Mulberry seedlings	740	—	3,560	5,000	1,820	11,120	—	11,120

TABLE F.

SEEDLINGS PLANTED FOR BUDDING IN 1937/38.

STOCKS	'Ein 'Arrub	Jericho	Nablus	Majdal	Farradiya	Acre	Sarafand	TOTAL
East Malling No. 1	100					150		250
,, ,, ,, 12	100					150		250
,, ,, ,, 13	100					150		250
,, ,, ,, 16	100					150		250
Crataegus azarolus	200					—		200
East Malling Quince A	100					150		250
,, ,, ,, C	100					150		250
Malus communis	2,000		2,000	1,500	1,000	12,800		19,300
Doucin	3,000		2,000	2,000	1,000	16,200		24,200
Myrobolan	—		1,000	1,000	—	3,000		5,000
Pyrus comm.	1,000		1,000	1,000	500	15,000		18,500
Cydonia vulg.	1,000		1,000	2,000	1,000	12,600		17,600
Persica vulg.	—		1,000	—	—	1,500		2,500
Paradise	—		—	—	—	10,000		10,000
Khashabi	1,000		1,000	1,000	3,000	11,660		17,660
Mahaleb	500		500	—	—	1,500		2,500
Qarassya	1,000		1,000	1,000	1,000	4,600		8,600
Suwaydah	—		500	—	—	1,755		2,255
Walnut	—		—	400	—	—		400
Pecan	—		—	—	—	—	250	250
Almond seedlings	5,000		5,000	6,000	2,500	—	—	18,500
Peach ,,	2,000		6,000	300	2,000	—	—	10,300
Apricot ,,	5,000		5,000	8,000	—	—	—	18,000
Mulberry ,,	—		500	500	—	1,000	1,000	3,000
Citrus ,,	—		—	—	—	6,000	1,400	7,400
Olive ,,	—		—	—	—	4,650	—	4,650
Loquat ,,	—	25	—	—	—	—	1,800	1,825
Fig cuttings	200	—	—	—	—	800	—	1,000
Cydonia vulg. cuttings	—	—	—	—	—	9,000	—	9,000
Doucin ,,	—	—	—	—	—	1,100	—	1,100
Khashabi ,,	—	—	—	—	—	7,500	—	7,500
Pomegranate ,,	—	—	—	—	—	1,000	—	1,000
Pyrus syriaca ,,	—	—	—	—	—	1,100	—	1,100
Vines	—	—	—	—	—	201,000	—	201,000

TABLE G.

STATEMENT OF EXPENDITURE (FINANCIAL YEAR 1936/37).

Item	Sub-Head	Horticultural and Fruit Inspection Service	
		£P. Mils	£P. Mils
	A. Personal Emoluments		
	Classified Personnel	6,510.—	
21	Messengers and Cleaners	37.500	
48	Gardeners	2,118.733	
48A	Supernumerary Constables at Horticultural Stations	20.—	
52	Assistant Fruit Inspectors	1,479.950	
55	Temporary Inspection Staff	1,631.771	
86	Gardeners, Government House Grounds	240.—	12,037.954
	B. Other Charges.		
146	Transport and Travelling	2,312.373	
147	Railway Fares and Freight	503.—	
148	Telegrams, Telephones and Postage	404.—	
149	Lighting and Heating	4.809	
150	Uniforms	74.485	
152	Forage	158.693	
153	Upkeep of Library and Records	2.923	
180	Upkeep of Government House Grounds	618.144	
191	Horticultural Demonstrations and Experiments	799.540	
192	Introduction of New Seeds and Plants	136.266	
193	Upkeep of Horticultural Stations	2,537.066	
194	Fruit Tree Nurseries	3,079.309	
195	Upkeep of Government Citrus Demonstration Stations	1,389.683	
196	Fruit Inspection Service	7,968.890	
199	Sericultural Material and Prizes	6.963	19.996.144
	C. Special Expenditure.		
219	Typewriters	56.—	
221	Draught Animals, Carts and Harnesses	162.980	
243	Shot Guns	19.—	
258	Grant for Citrus Research by the Experimental Station of the Jewish Agency	3,000.—	
259	Grant to Jewish Agency Experimental Fruit Growing at Hillside Station, Qiryat Anavim	300.—	
	Purchase of Embossing Press	42.344	
	Mediterranean Fruit Fly Campaign	286.—	
	Visit of Dr. R. G. Tomkins	127.500	3,993.824
	Total Expenditure		£P. 36,027.922 mils
	Expenditure on Citrus Fruit Advertising		£P. 20,393.— mils

TABLE H.

STATEMENT OF REVENUE COLLECTED DURING 1936/37.

	£P. Mils	£P. Mils
Horticulture.		
Nursery Registration and Licence Fees	4.450	
Sale of Nursery Produce	1,596.102	1,600.552
Fruit Inspection Service.		
Inspection Fees	14,674.917	
Fees for repacking, storage, registration of brands, etc.	1,111.675	15,786.592
Total Revenue		£P. 17,387.144 mils
Citrus Fruit Advertisement		£P. 34,199.085 mils

REPORT
BY THE CHIEF PLANT PROTECTION OFFICER,
FOR THE YEAR 1ST APRIL, 1936, TO 31ST MARCH, 1937.

I. GENERAL.

EXTENSION WORK.

With the addition of a Mycological Officer to the staff whose duties will be to spread the knowledge of plant disease control amongst the fellahin, the Entomological Service ceased to exist and the Plant Protection Service arose in its place. The service has been divided into three branches comprising, research, extension or advisory work, and plant quarantine. The two latter each have an officer in charge while the Chief Plant Protection Officer is responsible for all and also has the research branches under his immediate control. There is inevitably some overlapping of staff and duties. For example three of the research officers are also functioning as advisory officers in pest control in the areas under their jurisdiction in the Northern and in the Southern Districts. One of them until recently had also to carry out plant quarantine inspection duties in the new Tel-Aviv 'port'.

During the season 1935/36 a beginning had been made in extension work amongst the Arab fruit and vine growers in the hills and in the coastal plain, amongst the Jewish settlements in the plain of Esdraelon, and amongst both Arabs and Jews in the Jordan Valley and Galilee.

An officer was sent to England for special training at East Malling, in 1935. He returned to Palestine in December, 1936, and took over duties of Extension Officer for all Palestine. The disturbances virtually put a stop to all advisory activity. In the Jordan Valley it was possible to carry on for longer than in other places but the greater part of 1936 must be looked on as time completely wasted.

With the cessation of the troubles in October it was possible to gather up the broken threads and start again, but much time had been lost and certain field trials such as winter spraying against fig scale and codling moth spraying which it had been impossible to follow up had to be begun afresh.

The research officers in the North stationed at Acre and Tiberias were able to continue their work without serious interruption, but investigations into codling moth, Mediterranean fruit fly and *Capnodis* (the beetle root borer of stone fruit) were suspended.

By the end of the year under review all the machinery had been set in motion again. Field trials and demonstrations covered the following: Demonstrations on Mediterranean fruit fly control, winter spraying of fig trees against *Ceroplastes rusci*, control of bud moth and berry moth of vines (*Theresia ampelophaga* and *Polychrosis botrana*), general pests of vegetables and Curcubitaceae, tiger moth (*Zeuzera pyrina*) on apple trees, plum sawfly (*Hoplocampa sp.*), codling moth and woolly aphis (*Eriosoma lanigera*).

The policy followed is to concentrate attention on a few typical centres until the control methods to be used against common pests are thoroughly understood by the people in that area, rather than to dissipate the time and energies of a small staff in trying to cover the whole country. If these centres are successful in their fight against insect pests news will then spread to other places.

Means and methods of control for many insects are now available and use is being made of the rural schools to spread knowledge of these in places where the Plant Protection Service cannot work. There is no doubt that the rising generation will prove a means of instructing their elders, and the keenness of the teachers in the rural schools will be a great asset to the extension officers.

Five years ago when the Entomological Service was on what might be described as the primitive Paris green and kerosene emulsion basis, there was little to tell the fellahin, now there is much that can be given to them. There are few common pests afflicting the market garden which cannot be dealt with cheaply and effectively with non-poisonous materials and simple apparatus. Insecticides can at last be purchased in the country, and dusting and spraying machinery is available. There is much progress yet to be made in putting insecticides within the reach of everyone who wishes to purchase them but the trade no longer expects Government to act as its agents and is busy or is making preparations to sell approved brands of insecticides to fruit and vegetable growers, and in arranging for fumigation and spraying of citrus trees by contract. The days when the then Entomological Service was expected to destroy pests all over the country, fumigate citrus trees for scales and officials' houses for bugs and keep a kind of retail insecticide store all free of charge are (one trusts) gone for ever. On the other hand it is becoming known that the Plant Protection Service is ready to assist and to demostrate the use of insecticides or machinery so that the requests for advice and assistance are already more than the small staff can cope with. In recent times, the desire of the fellah for instruction particularly in horticulture and pest control and the welcome given to extension officers is most marked and encouraging. One is always faced with the factor of poverty and, however, anxious a garden owner may be to purchase insecticides, or machines he is sometimes unable to do so. Here it is hoped a way out will be found through the co-operative societies and doubtless in the future this hope will be fulfilled. Little faith is at present placed in the radio as a means of spreading knowledge of pest control, and little reliance is placed on the written word. The rural schools, personal visits and demonstrations wherever possible, and, so far as they can be spared from surveys and the collection of statistics, the visits of officers of the Agricultural and Horticultural Services are at present the best means of carrying on education in pest control. The above remarks apply to the areas occupied by Arab cultivators.

The Jewish settlements and farmers have their own extension service and this is not interfered with except by special invitation from a settlement or an individual. With them the radio and agricultural journals are both appreciated and understood to a greater degree than amongst Arabs.

It was the intention to station an advisory entomologist at the Sarafand Citrus Demonstration Station. Unfortunately owing to difficulties attendant on transport and lodging accommodation this idea had to be abandoned for the present although an advisory entomologist is needed to serve the area around Jaffa and southwards to Gaza.

II. PEST SITUATION.

1936/37.

The outstanding pests during 1936/37 were as follows. Firstly the Mediterranean fruit fly in the hills and the coastal plain. Here there was a difference from the situation in 1934/35. Then the fruit fly epidemic was serious all over the country, while in 1936/37 it was comparatively light in the Jordan Valley both in the area around Tiberias and in Jericho. The outbreak in the coastal plain was, however, of a very serious nature, and in the late autumn a campaign of lecturing and demonstration of standard control methods was carried out. This has been followed by a series of coloured posters designed to remind citrus fruit growers of the menace of the fly and the necessity for cleaning up their groves from stung, fallen fruit.

Another pest which is of importance is the mussel scale the spread of which is being well maintained. Owing to the political situation the mussel scale survey parties who are engaged in finding the area covered by the scale and the degree of infection had to abandon work in Jewish groves. No exact information exists therefore of the northward nfestation, but new groves are constantly being found towards the south and east. It seems probable that some form of compulsion will have to be applied to citrus growers to awaken them to the danger of the presence of this scale in their groves. For the last three years all growers in whose groves mussel scale has been found have been informed by letter, but no case is known of any one taking any steps to clean his trees of the pest. If the survey can be finished in 1937/38 season it may be time then to bring pressure to bear on the apathetic.

Three years ago the Agricultural Service, working in co-operation with the then Entomological Service, laid down plots in different parts of the country for the purpose of demon-

strating control of Ed Duda (*Syringopais temperatella*). The methods adopted comprising deep summer ploughing, and crop rotation and variants of these. These plots are now beginning to show interesting results which have yet to be analysed and examined. An intensive biological study of Ed Duda is required, particularly from its ecological aspect.

An interesting aspect of the situation in the present season is that in the Northern District Ed Duda has done little or no damage while in the Southern or Jerusalem (hill) Districts it is very prevalent in the late-sown wheat. The early or 'Afir' crop has to all intents and purposes escaped.

The disturbances caused a severe setback to the progress of scale control in citrus groves; only 87,000 trees were fumigated, a mere fraction of the number which would have been so treated had the situation been normal.

In circumstances such as those which existed during the greater part of the year under review it was difficult to keep touch with the incidence of pests throughout the year, but nothing abnormal was brought to notice with the exception of the already mentioned fruit fly. An at present unidentified sawfly was doing considerable damage to different vegetables in the Hula but seems to be confined to that area, and *Diloba caeruleocephala* caused some alarm from its ravages on the leaves of almonds in the spring of 1937. It was unfortunately not possible to obtain any data on *Myiopardalis pardalina* which was so destructive to melons in 1935. It may be possible to fill the omission in the coming melon season.

It is beginning to become evident that the plum sawfly (*Hoplocampa sp.*) is more widespread than was at first supposed and will probably be found to be pretty well distributed throughout plum orchards in the hills.

One difficult task which the Plant Protection Service was called upon to tackle was that of designing means of treatment of the new walnut wood doors in the Palestine Archaeological Museum in Jerusalem which after being hung have been found to be infected with a Cerambyx and a Scolytid. Fumigation with HCN is to be tried as no means of heat treatment exist.

III. PLANT PROTECTION COMMITTEE.

The Plant Protection Committee (a committee of the General Agricultural Council) has been revived in a different form with the Chief Plant Protection Officer as Chairman, and the Extension Officer as Secretary. Representatives of insecticide manufacturers and distributors are invited to attend its meetings.

IV. MEETING OF RESEARCH AND EXTENSION OFFICERS.

A new departure is the meeting every two months of officers of the research branch, extension officers and representatives of other services who might be interested in work which is in progress. At these meetings a brief outline is given of investigations in train and the progress which has been made and an opportunity is given for discussion of different points of interest. Such gatherings appear to fill a need and serve to keep the whole service and the department in touch with what is going on and the policy which is being followed. As opinions expressed and conclusions drawn are mostly tentative and liable to alteration as any line of research progresses, the proceedings are confidential and not intended for publication.

V. RESEARCH.

CHRYSOMPHALUS FICUS.

The result of four years study of the biology of *Chrysomphalus ficus* was published in the December, 1936, number of the Bulletin of Entomological Research. The main problem which presented itself was the discrepancies in the results obtained by fumigation in different parts of the country such as Acre and the Jordan Valley. In addition it was felt that the

need for the numerous and vexatious restrictions on the movement of citrus fruit, manure, ornamental plants and so on from the North to the South should be examined, and if possible the restrictions removed.

The theory had been put forward that *Chrysomphalus ficus* in the Jordan Valley had acquired immunity to fumigation, and much propaganda had been employed in the endeavour to show that the existence of black scale in a small area near Jaffa and in the groves in Acre and the Jordan Valley was threatening to extinguish the whole citrus industry. All these points could not be confirmed, refuted or answered except by biological study and so long as they were only the matter of opinion the controversy would be endless.

Briefly the results of study of the black scale showed :—

(1) that the alleged immunity in the Jordan Valley did not exist but, as the result of the rapid rate of reproduction of the scale, in that place, and the wrong timing of fumigation, control had seemed unavailing. It is concluded that winter and not summer fumigation will give the best results;

(2) that the Acre black scale gives two points in its life cycle throughout the year at which it is most vulnerable namely in early summer and early autumn and that all fumigation should be finished by mid-July at the latest for the maximum effect to be obtained;

(3) that the rate of spread of infection from one grove to another is not so rapid or disastrous as was at first assumed and that provided a grove is fumigated annually it does not matter much what is done in neighbouring infected groves;

(4) that the risk of infection from orange peel, manure, single ornamental plants, etc. is so small as to be negligible and in consequence it has been possible to remove all internal quarantine regulations except for those affecting the transport of nursery stock of which mention will be made hereafter;

(5) one suggestion of great interest arose from the discovery alluded to above of two weak points in the black scale defences. It was suggested that if a grove is fumigated twice in the one year at the critical times it would be possible to leave it unfumigated (provided it was free from outside contamination) for four or at least three years.

There has not been time to prove or disprove the validity of this idea. Experiments are in progress and the first fumigated grove under this scheme is now in its second year after the double fumigation. Another grove is in its first year and others are to be fumigated in the coming season. The results obtained from the first grove are encouraging.

If applied to a whole area, and if it should prove successful the cost of fumigation will be thereby greatly reduced.

The factors affecting the rate of re-infection of a clean grove and the microclimate of an orange grove are still under study although discussed in the paper.

An attempt to introduce *Comperiella bifasciata* from Japan for experimenting with it as a control of black scale on some of its alternative hosts failed owing to the death of the parasites on their long voyage from Japan. It is unlikely that these parasites can be brought so far unattended, and before it is attempted again, arrangements for an officer to bring them in his charge will have to be made.

The examination of the biology of the black scale in the Jaffa area for comparison with the studies carried out in Acre and Tiberias has been begun.

The life history studies of *Empoasca lybica* and its role in the transmission of an un- of an unidentified virus disease of potatoes and tomatoes, and methods of its control are nearing completion.

The Mediterranean fruit fly is the subject of research in the coastal plain, Acre and the Jordan Valley and this work will be extended into the hills towards the end of the coming year. Some of the points under investigation apart from the general life history are the accurate timing of control measures, the chain of hosts and the means of control best adapted to Palestinian conditions.

Work is being carried on also on *Polychrosis botrana* and the search for a non-arsenical dust for its control; and similar investigations have been initiated into the control of the grape bud moth.

Trials of insecticides for the control of vegetable pests and a compilation of a market garden pest calendar are sufficiently advanced to warrant publication for the use of gardeners.

Considerable success has attended the use of a proprietary form of Derris powder, which being non-poisonous and comparatively inexpensive, is ideal for the vegetable grower's use.

A cheap and effective remedy for the destructive mole cricket is also in use which is less dangerous to handle than the admittedly effective zinc phosphide. Apart from work on *Capnodis*, other studies are confined to the control and life history of *Prays oleellus*, *Lixus spp.* and codling moth.

The possibility of arriving at a means of control for *Capnodis carbonaria* and *C. tenebrionis* has come one step nearer by the placing of the Jerusalem Horticultural Station at the disposal of the Plant Protection Service. The greater part of this station will be used for the trial of different methods of control on Myrobolan stock, the most susceptible stock known.

In addition a detailed study of the resistance or otherwise of the wild almond stocks in different types of soil and grafted with different varieties of stone fruit will be undertaken as soon as it is financially possible to procure the required land. Sanction for the scheme has been given in principle but so far sufficient funds for the purpose are not available. As the programme is designed to cover a ten year period it is most desirable that a start should be made as soon as possible. The situation regarding the susceptibility of stocks is so obscure and so much planting of stone fruit is going on in the hills that further delay in stock research would be a matter for keen regret.

VI. HEADQUARTERS LABORATORY.

The work of transferring the insect collection to suitable cabinets had been delayed owing to the needs of economy but it is anticipated that it will be possible to procure further cabinets in the coming year. As this collection is unique and of some value it is essential to have it safely housed as soon as possible. The insect pest card catalogue and the library catalogues have been brought up to date, and several life history exhibition boxes have been prepared.

Acknowledgment is made of the service rendered by the Imperial Institute of Entomology in answering enquiries and in identification of insects and to the Chief of the Plant Quarantine Service, Nagasaki, Japan, for the trouble taken in collecting, packing and forwarding *Comperiella* from Japan, and to the Mycologist of the Jewish Agency Experimental Station, Rehovot, for identification of fungus diseases and to the Director of the Entomological Section, Egypt, for the supply of parasites and predators, and East Malling Research Station for drawing up the layout of the *Capnodis* root stock experiment.

VII. PLANT QUARANTINE.

This year saw the first enforcement of the Plant Protection (Nursery) Rules governing the movement of nursery stock and the conditions of nurseries. The 'police' work in connection with this fell on the quarantine branch of the Plant Protection Service. Other activities included patrolling the Syrian borders for the prevention of smuggling of bananas into Palestine besides the routine work at the ports and Jerusalem railway station. The Department of Customs Excise and Trade took over plant inspection at the frontier posts of Ras en Naqura and Rosh Pinna. Nothing noteworthy was intercepted at the ports except in Syrian potatoes which were abundantly infected with potato tuber moth to such an extent as to call for special legislation. Potato tuber moth is a native of Palestine but has not yet shown itself in an aggressive form and it is undesirable to import it in large numbers from our neighbours.

Statistics of plant imports and examinations carried out are given in appendix 'A'.

A very successful use was made of *Novius cardinalis* in cleaning a "cushion scale" infested orange grove in Hula area. There is a slight return of the outbreak at the time of writing but the beetle larvae are in many cases already at work, in one case, at some distance from the part of the grove in which they were released last year.

VIII. PUBLICATIONS AND BROADCASTS.

Eleven talks were broadcast during the year 1936/37.

One leading article was published in the Agricultural Supplement to the Palestine Gazette.

A paper by Dr. Schweig and Mr. Grünberg on the problem of black scale (*Chrysomphalus ficus*) in Palestine was published in the December, 1936, issue No. 27, part 4 of the Bulletin of the Entomological Research, London.

The Chief Plant Protection Officer acted as special magistrate on duty with the troops from May to July, 1936, and was on leave from the end of July to the end of January, 1937.

E. BALLARD
Chief Plant Protection Officer.

APPENDIX A.

STATEMENT OF PLANT INSPECTION AND CONFISCATION DURING THE YEAR 1936/37.

STATION	1936																1937					
	April		May		June		July		August		September		October		November		December		January		February		March	
	Ins.	Con.	Ins.	Con.	Ins.	Con.	Ins.	Con.	Ins.	Con.	Ins.	Con.	Ins.	Con.	Ins.	Con.	Ins.	Con.	Ins.	Con.	Ins.	Con.	Ins.	Con.
Jerusalem	68	2	51	1	79	—	59	—	53	—	85	3*	35	—	6	—	38	—	104	—	81	—	104	—
Jaffa	184	1	5	—	8	1	6	1	7	—	19	—	86	2 1*	51	—	90	15	97	10	109	9	144	1
Haifa	172	—	188	—	318	5	239	1	272	—	438	1*	421	3	554	2	547	2	569	—	589	1	449	—
Acre	—	—	—	—	—	—	—	—	3	—	3	—	3	1	3	1	—	—	—	—	—	—	—	—
Tel-Aviv	32	1	92	5	115	—	240	—	225	12	254	9	219	—	96	—	65	—	90	—	104	2	237	1
Jenin	6	6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Rosh Pinna	67	8 1*	5	2	45	3	39	1	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ras en Naqura	97	8	58	7	22	9	67	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
TOTAL	616	26 1*	399	15	587	18	650	3	562	12	799	9 4*	764	6 1*	710	3	740	17	860	10	883	12	934	2

* Re-exported.

Total consignments inspected 8,494
Consignments confiscated 133

REPORT BY THE AGRICULTURAL EDUCATION AND RESEARCH OFFICER

FOR THE

YEAR 1ST APRIL, 1936, TO 31ST MARCH, 1937.

An Agricultural Education and Research Service was inaugurated in August, 1936, on the transfer from Malaya of Mr. J. A. Craig, to take up the appointment of Agricultural Education and Research Officer.

This new service is designed to deal with all matters relating to agricultural education, research, publications, and propaganda, and to form a liaison between research workers and research institutions in Palestine.

The monthly publication of an Agricultural Supplement to the Palestine Gazette which was commenced in January, 1936, was continued throughout the year. This Supplement is printed in the three official languages on the third Thursday of each month and gives concise information in simple phraseology to those farmers who are unable to benefit from the more technical information published in agricultural journals and research station bulletins, most of which are published in Hebrew and English only. The supplement opens with two leading articles of topical interest, and contains notes on crop conditions in the various districts, information regarding local and foreign markets, abstracts of technical publications, and items concerning departmental and other activities of interest to the agricultural community.

The establishment of the Palestine Broadcasting Service afforded the Department an additional line of approach to the cultivator; and on the 16th of April, 1936, the first of a series of "Talks to Farmers" was broadcast from the Jerusalem studio of the Broadcasting Service. From the middle of June, 1936, these "Talks" have become a regular feature of the Broadcast Programmes, one lecture in Arabic and one in Hebrew being given each week. The duration of the talks is approximately a quarter of an hour, the subjects selected being of topical interest and the matter so expressed as to be easily understood. Material for 100 broadcasts, of which 40 were in Arabic, 47 in Hebrew, and 4 in English, on 50 subjects, was prepared by the various services of the Department. In addition to these weekly talks, arrangements were made which resulted in the broadcasting as from the 11th of November, 1936, of daily weather forecasts and subsequently, through the courtesy of Messrs. Reuters Ltd., and the co-operation of the Broadcasting Service, it was possible to disseminate the latest and most reliable cabled information concerning the trend of citrus fruit markets and prices in the United Kingdom, three times a week.

The courses of instruction at the two Government Kadoorie Agricultural Schools were interrupted by the disturbances which broke out in April, 1936, and both buildings were eventually occupied by troops. The school for Arab students at Tulkarm was closed on 25th April, 1936, and the school for Jewish students at Mount Tabor on 7th June, 1936. The school at Tulkarm remained closed until the end of the period under review, but it was possible to re-open the school at Mount Tabor on 20th December, 1936. In order to regularise admission to the school, a class of new students which had previously been selected were allowed to commence their studies in January, 1937, and three classes totalling 59 students were accommodated until the end of March, when the first class of 21 boys to complete a course of training at the school, graduated. The syllabi of both schools have recently been closely examined, and a number of alterations in the courses of training are contemplated.

In addition to facilities at the Government Kadoorie Agricultural Schools, agricultural education is provided at nine other non-official agricultural schools. The object of these schools is to provide a sound practical training in agriculture, so as to fit the students for work on

the land. The following table shows the number of students attending agricultural schools in Palestine in 1936 :—

Name of School.	*Number of Students*	
	Boys	*Girls*
Kadoorie Agricultural School, Tulkarm	70	—
Kadoorie Agricultural School, Mount Tabor	50	—
Alliance Israélite Agricultural School, Miqvé Yisrael	244	—
The Canadian Hadassah Agricultural School for Girls, Nahalal	—	100
Children's Farm, Ben Shemen	80	51
Children's Village, Meïr Shefeya	60	50
Girls' Training Farm, Ayanot	—	70
Agricultural Secondary School, Pardess Hanna	29	5
Salesian Agricultural School, Beit Jimal	71	—
Orphelinat Agricole des Pères Trappistes, Latrun	16	—
Agricultural School, Rafat	32	—
TOTAL	652	276

Research work, particularly in regard to field experiments, was hampered throughout the period of the disturbances by difficulty in travel and supervision. With a view to co-ordination of the efforts of the Department of Agriculture and Fisheries with that of various grant-aided research institutions, the writer commenced to review and record investigational work which had been undertaken or was in progress at the Jewish Agency Agricultural Experiment Station at Rehovot and at the Alliance Israélite Agricultural School, Miqvé Yisrael. In addition to this work, advice and suggestions regarding the layout of field experiments on Government agricultural and horticultural stations were tendered to the officers concerned. A scheme of research into the incidence and causes of wastage of Palestine citrus fruit was prepared in conjunction with the Chief Horticultural Officer. The writer also served as Secretary of the Acre Citrus Commission, appointed to consider the report of an economic survey of that area and to make recommendations to Government as to the measures necessary to ameliorate agricultural conditions.

J. A. CRAIG
Agricultural Education and Research Officer.

GENERAL AGRICULTURAL COUNCIL.

REPORT FOR THE YEAR ENDED 31ST MARCH, 1937.

During the year under review the membership of the Council consisted of :—

CHAIRMAN : Mr. M. T. Dawe, O.B.E., F.L.S., Director of Agriculture and Fisheries.

MEMBERS : Mr. F. J. Tear, (Retired in June, 1936).
Mr. A. F. Nayton, O.B.E., Registrar of Cooperative Societies.
Jamil Eff. Shawa.
Abd er Rahim Eff. Nabulsi, M.B.E.
Nicola Eff. Gelat.
Sheikh Mustafa Eff. el Khairi.
Rafi' Bey el Fahum.
Sheikh Khalil Eff. el Azzeh.
Dr. J. Kligler.
Mr. H. Viteles.
Dr. M. B. Hexter.
Mr. Y. Elazari-Volcani, M.B.E.
Mr. H. Wolfson.
Mr. M. Smilansky, M.B.E.
Mr. A. P. S. Clark, M.B.E.
Mr. G. Wagner.
Father A. Sacchetti.

SECRETARY : Mr. M. Brown, M.B.E.

The membership of the nine Commitees which submit their reports and minutes of meetings to the Council for review, endorsement or recommendations to Government, is shown below :—

	Number of Members
Horticultural Committee	14
Plant Protection Committee	9
Agricultural Economics and Marketing Committee	17
Agricultural Chemists Committee	8
Citrus Fruit Committee	18
Animal Husbandry Committee	18
Agronomy Committee	17
Irrigation Committee	16
Agricultural Education Committee	9
	126

Owing to the disturbed conditions in 1936, the Council itself was only able to meet three times during the past year. Written opinions of members, however, were sought on various matters emanating either from the Committees or the Council, while action was taken departmentally when necessary, on matters of urgency such as increasing the customs duty on poultry and eggs, and the preparation and publication of regulations and arrangements for the export of citrus fruit.

SAFEGUARDING PUBLIC WATER SUPPLIES.

A draft ordinance to safeguard public water supplies was published in the Palestine Gazette on the 7th May, 1936, and was referred to the Council for its views thereon prior to enactment. The Irrigation Committee studied the bill at two meetings and submitted a memorandum which was considered by the Council in January, 1937, and endorsed, subject to certain amendments, and forwarded to Government. The Ordinance has since been enacted on the 19th August, 1937.

ORGANIC MANURE.

Recommendations to prevent the theft of manure, and to make better legal provision to determine the ownership of manure, were further considered by the Council. The Animal Manure Ordinance was subsequently enacted (on the 4th November, 1937). Various proposals to increase the supply of organic manure were also considered, but it must be recorded with regret that these proposals such as the conversion of town refuse into compost, and the utilisation of sewage, have been found to be impracticable owing to the high costs of land or labour entailed. Nevertheless, details of an experiment have been submitted to test the efficacy of the "cell" method for converting refuse into organic manure. This possibility is still being explored.

AGRICULTURAL EDUCATION.

The Agricultural Education Committee is still examining proposals for the better classification of schools with a view to securing some uniformity in the matter of syllabi and, if found feasible, to arrange for the inspection of agricultural schools and the adoption of a uniform or comparable form of leaving certificate or diploma.

EXEMPTION OF AGRICULTURAL VEHICLES FROM LICENCE FEES.

Government has agreed that agricultural vehicles which are exempt from payment of licence fees may, in future, be permitted to carry dairy produce such as milk, butter and cheese, and also poultry, eggs and flour.

POULTRY AND EGGS.

The Sub-Committee which was appointed to ascertain the methods and costs of poultry production, held ten meetings and its major recommendations in regard to increasing the customs duty on poultry and eggs were endorsed by the Council. On the 22nd April, 1937, the higher duties were introduced, viz. the duty on eggs was increased from 0.2 mils to 1 mil per egg during the season 1st February to 30th June, and a duty of 25 mils per bird imposed the whole year round. The Iraqi authorities agreed to the application of this duty to imports from Iraq; but negotiations are still continuing with the Syrian authorities with a view to securing the agreement of the latter to applying these duties to imports from Syria. Under the Palestine-Syria Customs Agreement of 1929, poultry and eggs, the produce of Syria, may enter Palestine free of duty. Consequently, owing to the big imports from Syria, the new duties will have very little effect unless they can be applied to imports from Syria.

CITRUS—DRAWBACKS ON BOX WOOD.

A joint committee of the Standing Committee for Commerce and Industry, the General Agricultural Council, and the Citrus Fruit Committee was appointed to investigate and report upon a scheme to facilitate the local preparation of citrus boxes from imported timber, and the grant of drawbacks on the export of all citrus boxes. The Committee agreed that the

import duty on wood for citrus cases should be increased so as to equalise it with that levied on imported timber, and recommended the payment of a drawback to the exporter of $2\frac{1}{2}$ mils per box from 1st January, 1937, and $3\frac{1}{2}$ mils from 1st February, 1937. Government agreed to the scheme in principle but considered that the time was not yet opportune for the reduction of taxation implicit in the scheme, and that the matter would be reconsidered as soon as revenue prospects warrant it.

THE PREVENTION OF WASTAGE IN CITRUS FRUIT EXPORTED OVERSEAS.

Several meetings were held, in conjunction with the Experimental Station at Rehovot, to draw up a scheme of investigation into the causes of fruit wastage, as recommended by Dr. Tomkins in his report. A scheme has now been prepared and submitted to the Director of Food Investigations in England, and it is hoped to commence work on the scheme during the 1937/38 season.

CITRUS TRANSPORTATION AND MARKETING.

The Citrus Transportation and Marketing Committee were able to submit unanimous proposals for the enactment of legislation prescribing minimum standards for ships carrying citrus fruit overseas. The proposals have not yet been made law, as subsequently Government considered it desirable to obtain the views of the shipping companies on the proposals. The shipping companies object to some of the proposals on the grounds of their being impracticable or because they will increase the cost of freights. The views of all shipping companies have not yet been received, but owing to the general rise in freight rates and the general world shipping situation, it seems improbable that legislation can be passed to take effect during the 1937/38 season.

CITRUS BY-PRODUCTS.

The Sub-Committee has submitted its report which has been endorsed by the Citrus Fruit Committee and is now under consideration by the Government. The principal recommendation is that sugar used in the manufacture of citrus by-products such as juices and marmalades should be exempt from customs duty.

CITRUS EXPORT AND FRUIT INSPECTION.

The Citrus Fruit Committee held four meetings during the year under review and considered various important questions affecting the industry such as the registration of packing sheds; the advertising of citrus fruits; improved inspection of fruit; amendments to the Export Rules; taxation of citrus lands; drawback on box wood, nails, and hoops; the possibility of using collapsible and returnable metal containers for exporting citrus; and the protection of the Jaffa trade mark, etc.

RURAL PROPERTY TAX.

The recommendations of the Council on this subject culminated in the reduction of the Rural Property Tax on citrus lands for a period of two years (from 1st April, 1936, to 31st March, 1938) from 825 mils to 500 mils per dunam, the tax of lands in the Acre Sub-district being reduced from 410 to 50 mils per dunam.

APPLES AND PEARS.

A joint committee of the Citrus Fruit Committee and the General Agricultural Council, was appointed to consider a proposal for the increase of customs duty on apples and pears, in order to encourage a greater local consumption of citrus fruits and to reduce the imports of fruits other than citrus. The proposal is still under examination by the Committee.

FISHERIES COMMITTEE.

A new committee of the Council was appointed by the High Commissioner to advise on proposals for the improvement and development of the fishing industry.

ECONOMICS OF THE DAIRY INDUSTRY.

Mr. Elazari-Volcani and Dr. Samuel of the Rehovot Experiment Station completed their studies on the economics of the dairy industry. Their reports were summarised and issued to members of the Council for perusal. It is hoped that the Council will be able to make recommendations on this subject to Government during 1937 with the principal object of increasing the local production and sale of butter.

OTHER MATTERS.

Other matters dealt with by the Council during the year included :—

Submission of resolutions to Government for the reduction of customs duties in the United Kingdom on citrus fruit imported from Palestine.

Trade proposals for increasing the export of citrus fruit to France and Canada.

The amendment of Regulations under the Plant Protection Ordinance to prevent the introduction of potatoes infested with tuber moth.

Proposals to combat field mice more cheaply by the use of a cheaper poison, and suggestions for the spread of propaganda to combat Ed Duda (*Scythris temperatella*) which attacks the wheat crop.

Proposals for the increase of customs duties on onions and other vegetables to encourage the growing of larger areas and quantities. Such proposals, however, are largely bound up with the revision of the Palestine-Syria Customs Agreement of 1929. This question is still under consideration.

M. BROWN.
Secretary,
General Agricultural Council.

GOVERNMENT OF PALESTINE

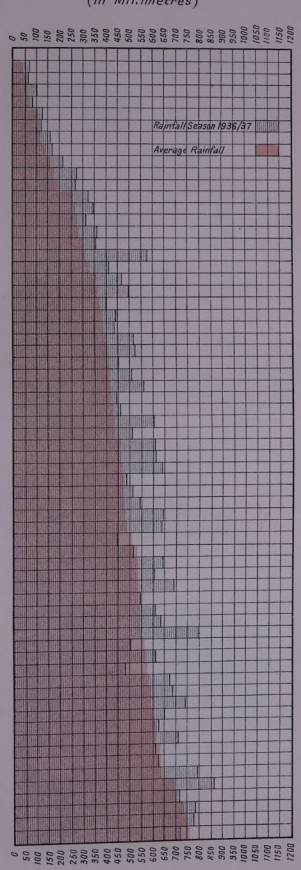
DEPARTMENT OF AGRICULTURE & FISHERIES

GRAPHIC PRESENTATION OF RAINFALL FOR THE SEASON: JUNE 1936 TO MAY 1937

AS COMPARED WITH AVERAGE RAINFALL

(In Millimetres)

Stations	Average Rainfall: Nr. of Years	Average Rainfall: Milli-metres	Rainfall Season 1936/37: Milli-metres
El 'Auja	3	44·7	69·0
Kurnub	3	60·8	64·0
Dead Sea Post	9	65·8	101·8
Bir 'Asluj	3	69·0	86·0
Allenby Bridge	4	103·3	124·5
Ras ez Zuweira	4	115·0	122·0
Jericho	14	118·1	160·0
Khan el Ahmar	5	143·0	167·0
El 'Imara	3	161·5	217·0
Jisr Damye	3	177·3	272·4
Beersheba	16	193·7	269·5
Edh Dhahriye	2	256·0	324·0
Khan Yunis	4	268·9	346·0
Jisr Sh. Husein	4	276·8	315·5
Beisan	11	278·7	361·0
Samakh	4	300·2	356·5
Jemmame	3	311·3	578·0
El Majdal	11	326·9	413·0
Gedera	5	353·0	468·4
Tel-Or	9	358·2	500·8
Gaza	26	370·0	400·1
Rafat	4	379·6	448·1
Majdal Agric. Sta.	5	384·5	436·2
Mt. Tabor	2	395·5	521·2
El 'Affule	4	403·4	526·6
Jisr Banat Ya'qub	4	406·0	451·0
Mazkeret Batya	12	416·2	505·0
Sarafand	2	417·4	555·0
Khulda	2	419·0	446·5
Tiberias	33	436·3	460·0
Er Ramle	10	437·0	602·6
Beit Jimal	18	437·9	511·6
Ben Shemen	17	459·4	611·6
Nes Tsiyona	9	462·1	612·4
Bab el Wad	8	466·6	640·0
Jenin	16	470·4	486·3
Jaffa	11	472·6	514·0
Wilhelma	12	476·0	546·2
Qalmaniya	8	478·4	645·0
Beit Jibrin	2	487·5	636·0
Ras en Naqura	4	510·1	449·0
Hebron	26	532·0	516·0
Tulkarm	15	532·4	646·6
Tel Aviv	32	532·4	603·5
Rishon le Zion	12	536·6	691·0
Migve Yisrael	40	541·7	545·2
Herzliya	8	544·5	609·7
Sarona	23	544·9	632·0
Qiryat Anavim	8	550·0	794·7
Ramat hash Sharon	4	557·6	502·6
Buweiziye	4	562·2	614·0
Acre	12	572·2	479·5
Arrub	2	581·6	674·9
Kefar Sava	4	590·3	687·5
Nablus	15	590·3	741·0
Zikhron Ya'aqov	9	593·1	651·5
Haifa	25	612·7	629·2
Nazareth	31	613·3	716·2
El Manawat	4	630·9	615·0
Jerusalem	89	637·6	621·0
Bir Zeit	11	640·0	792·0
Ramallah	3	695·8	865·5
Mi'ilya	3	701·7	715·0
Farradiye	4	740·2	786·0
Safad	14	744·4	779·7
Metulla	4	754·4	723·7



GOVERNMENT OF PALESTINE.

DEPARTMENT OF AGRICULTURE AND FISHERIES.

STATEMENT OF RAINFALL FOR THE SEASON JUNE 1936 TO MAY 1937 AS COMPARED WITH AVERAGE RAINFALL (In Millimetres).

GPP. 4304—1100—10-10-37

Station	June to Sept. 1936	October 1936	November 1936	December 1936	January 1937	February 1937	March 1937	April 1937	May 1937	Total for Season	Average Seasonal Rainfall.	
											No. of Seasons	Millimetres
OFFICIAL STATIONS.												
Acre.	—	19.0	181.5	94.0	141.0	13.5	9.0	18.0	3.5	479.5	12	572.2
Haifa.	—	4.0	241.0	136.5	202.0	17.0	4.5	20.7	3.5	629.2	95	612.7
Jenin.	—	2.3	114.9	118.3	198.3	6.7	14.9	26.3	4.6	486.3	16	470.4
Tel-Aviv.	—	0.8	224.3	128.6	226.2	3.1	2.5	16.2	1.8	603.5	32	532.4
Jerusalem.	—	drops	139.4	146.9	239.8	44.9	12.1	36.4	1.5	621.0	89	637.6
Jericho.	—	drops	50.0	32.0	59.0	2.5	—	16.5	—	160.0	14	118.1
Gaza.	—	—	97.9	122.3	140.6	4.4	—	34.9	—	400.1	26	370.0
Beersheba.	—	1.5	44.5	81.0	130.0	4.0	—	8.5	—	269.5	16	193.7
Beisan.	—	0.5	114.0	76.5	140.0	13.0	3.0	12.0	2.0	361.0	11	278.7
Beit Jimal.	—	—	163.3	108.4	193.2	28.2	—	18.5	—	511.6	18	437.9
NON-OFFICIAL STATIONS.												
Metulla.	—	9.5	183.5	163.2	224.0	47.5	43.0	46.5	6.5	723.7	4	754.4
Ras en Naqura.	—	1.0	175.5	114.5	115.0	7.0	14.5	12.5	9.0	449.0	4	510.1
Buweiziye.	—	2.5	150.5	135.0	176.0	91.0	22.0	34.0	3.0	614.0	4	562.2
Jisr Banat Ya'qub.	—	—	150.0	105.0	136.0	37.0	—	20.0	3.0	451.0	4	406.0
Safad.	—	10.4	241.3	178.1	243.8	30.7	10.7	55.3	9.4	779.7	14	744.4
Farradiye.	—	2.0	248.5	152.0	267.5	44.0	14.0	52.5	5.5	786.0	4	140.2
Tiberias.	—	—	150.0	114.0	157.5	18.5	—	20.0	—	460.0	33	436.3
Samakh.	—	—	119.0	79.0	110.0	31.5	2.0	15.0	—	356.5	4	300.2
Manawat.	—	3.0	182.0	131.0	179.0	66.0	29.0	25.0	—	815.0	4	630.9
Nazareth.	—	3.5	271.5	198.5	220.0	25.7	10.5	22.0	4.5	716.2	31	613.3
Affule.	—	1.0	208.0	100.8	149.8	34.0	15.0	10.0	8.0	526.6	4	403.4
Jisr Sheikh Husein.	—	—	118.5	45.0	109.0	27.0	11.0	12.0	—	315.5	4	276.8
Zikhron Ya'aqov.	—	4.5	216.0	132.0	201.0	62.0	21.0	10.5	4.5	651.5	9	593.1
Nablus.	—	—	140.0	167.0	389.0	16.0	13.0	12.0	4.0	741.0	15	590.3
Tulkarm.	—	—	177.9	139.7	229.2	68.4	12.6	17.6	1.2	646.6	15	532.4
Jisr Damye.	—	—	69.0	45.4	98.0	52.0	—	8.0	—	272.4	3	177.3
Qalunaiya.	—	0.5	202.0	140.0	239.0	28.0	6.0	25.0	4.5	645.0	8	478.4
Wilhelma.	—	1.0	146.5	116.2	252.0	8.5	3.5	16.5	2.0	546.2	12	476.0
Bir Zeit.	—	drops	188.0	165.0	375.0	20.0	—	44.0	—	792.0	11	640.0
Ramallah.	—	drops	221.0	136.5	433.0	21.0	—	54.0	—	865.5	3	695.8
Ben Shemen.	—	0.7	183.7	130.2	278.3	2.6	—	16.1	—	611.6	17	459.4
Rafat.	—	—	155.0	71.2	184.1	0.5	2.2	27.1	—	440.1	4	379.6
Er Ramle.	—	1.5	169.5	129.7	272.1	6.7	0.5	18.1	4.5	602.6	10	437.0
Bab el Wad.	—	drops	180.0	117.5	278.0	20.5	—	44.0	—	640.0	8	466.6
Qiryat 'Anavim.	—	drops	222.1	154.2	320.0	34.8	3.4	60.2	—	794.7	8	550.0
Jaffa.	—	—	183.5	112.0	199.5	1.0	1.5	14.5	drops	514.0	11	472.6
Miuye Yisrael.	—	—	184.0	107.3	234.7	2.9	1.4	13.3	1.6	545.2	40	541.7
Kefar Sava.	—	drops	228.0	144.5	294.0	7.0	drops	12.5	1.5	687.5	4	590.3
Sarona.	—	1.0	233.5	118.5	253.0	5.0	3.5	14.5	3.0	632.0	23	544.9
Herzliya.	—	2.0	209.5	106.5	261.7	4.5	5.0	17.0	3.5	609.7	8	544.5
Ramat haah Sharon.	—	1.3	149.3	106.8	217.5	9.0	3.8	11.4	3.5	502.6	4	557.6
Rishon le Zion.	—	—	168.0	128.0	374.0	—	—	20.0	1.0	691.0	12	536.6
Mazkeret Batya	—	—	135.9	70.4	262.7	1.7	8.6	21.7	5.0	505.0	12	416.2
Gedera.	—	1.5	133.5	74.2	229.2	2.5	4.0	23.5	—	468.4	5	353.0
Hebron.	—	3.0	104.5	130.0	206.0	34.0	—	35.5	3.0	516.0	26	532.0
El Majdal	—	—	120.0	106.0	174.0	4.0	—	9.0	—	413.0	11	326.9
Majdal Agric. Station	—	—	144.5	94.0	177.4	10.5	—	9.8	—	436.2	5	384.5
Khan Yunis.	—	—	157.0	75.0	107.0	—	—	7.0	—	346.0	4	268.9
Khan el Ahmar.	—	drops	24.0	44.0	64.0	23.0	—	12.0	—	167.0	5	143.0
Allenby Bridge.	—	drops	52.0	18.5	37.0	7.0	—	10.0	—	124.5	4	103.3
Tel-Or	—	1.7	155.3	92.1	195.4	19.7	15.6	19.1	1.9	500.8	9	358.2
Dead Sea Post.	—	—	29.0	23.3	36.2	10.3	—	3.0	—	101.8	9	65.8
Kurnub.	—	—	1.0	24.0	37.0	1.0	—	1.0	—	64.0	3	60.8
Ras ez Zuweira.	—	—	13.0	47.0	58.0	4.0	—	—	—	122.0	4	115.0
El 'Imara.	—	—	73.0	42.0	99.0	—	—	3.0	—	217.0	3	161.5
Jemmame.	—	—	28.0	161.0	345.0	16.0	—	28.0	—	578.0	3	311.3
Bir Asluj.	—	—	—	30.0	55.0	1.0	—	—	—	86.0	3	69.0
Mi'ilya.	—	10.0	156.0	157.0	255.0	84.0	26.0	28.0	—	716.0	3	701.7
El 'Arja.	—	—	—	27.0	37.0	5.0	—	—	—	69.0	3	44.7
Edh Dhiriye.	—	drops	83.5	102.0	117.5	—	—	21.0	—	324.0	2	256.0
Beit Jibrin.	—	drops	156.5	119.0	257.0	62.5	—	41.0	—	636.0	2	487.5
'Arrub.	—	drops	134.4	163.3	296.0	49.3	—	32.0	—	674.9	2	581.6
Khulda.	—	—	138.5	78.0	230.0	—	—	—	—	446.5	2	419.0
Nes Tsiyona.	—	1.3	177.7	109.3	304.1	1.6	0.4	18.0	—	612.4	9	462.1
Mt. Tabor	—	—	190.7	120.3	148.0	39.2	5.0	18.0	—	521.2	2	395.5
Surafand	—	1.5	151.0	103.0	285.0	0.5	—	13.5	0.5	555.0	2	417.4

R 1936

GOVERNMENT OF PALESTINE

Department of Agriculture and Forests

JERUSALEM

29646—4/00—3.3.37

$C_h = + 67.5$ mm.

Month	M (m	Days with 0·1 mm. of rain	Days with ≥ 1·0 mm. of rain	Wind: Force 8 h. Mean of day Scale 0—12	Wind: Direction (8^h) Number of Observations in which the Wind-Direction was recorded as N	NE	E	SE	S	SW	W	NW	Calm	Evaporation mm. per day Piche
1936	8													
January ...	60	8	8	1.0	0	0.5	8	5.5	1	1	5	0	10	2.69
February	9	9	8	1.7	0	0	3.5	1	0.5	2	13	2	7	3.57
March ...	9	4	4	1.1	0	2	5	0	0	2	8	0	14	4.43
April	9	2	2	1.5	0	0	6	2	1	1	14	1	5	5.81
May	9	0	0	0.9	0	0	3	3	0	1	9	0	15	6.84
June	9	0	0	1.8	1	0	5	0	0	4	11	1	8	8.34
July	9	0	0	1.5	0	1	0	0	0	1.5	17.5	7	4	8.80
August ...	9	0	0	1.2	0	0	0	0	1	1	10	10	9	6.29
September	9	0	0	1.0	2	0	4	0	0	1.5	7	4.5	11	6.77
October ...	9	0	0	0.4	0	1	5	3	0	0	2	1	19	8.63
November	9	7	7	0.9	0	0	1.5	1.5	0	2	5	3	17	4.84
December	9	13	12	1.6	0	2	9	1	1.5	2.5	5	2	8	3.33
YEAR ...	69	43	41	1.2	3	6.5	50	17	5	19.5	106.5	31.5	127	5.86

R 1936

GOVERNMENT OF PALESTINE

Department of Agriculture and Forests

JERUSALEM

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29646—4/00—3.3.3

Month	M (m	Days with 0·1 mm. of rain	Days with ≥ 1·0 mm. of rain	Wind: Force Mean of day Scale 0—12	Wind: Direction ($8^h + 14^h + 20^h$) Number of Observations in which the Wind-Direction was recorded as N	NE	E	SE	S	SW	W	NW	Calm	Evaporation mm per day Piche
1936														
January ...		5	5	2.0	4	1	30	7	16	14	0	5	16	3.96
February		7	7	2.4	3	3	9	2	20	25	3	6	16	5.04
March ...		2	2	1.9	5	11	19	4	15	15	2	9	13	5.68
April		3	3	1.9	4	4	10	1	13	23	6	12	17	6.31
May		1	0	1.9	5	9	9	9	6	12	6	24	13	8.18
June		0	0	2.3	3	5	0	0	11	9	8	39	15	6.61
July		0	0	1.8	11	0	0	1	8	7	9	39	18	6.17
August ...		0	0	1.6	15	0	0	2	3	6	9	37	21	5.53
September		0	0	1.3	28	6	0	0	6	4	5	23	18	6.21
October ...		0	0	1.5	26	5	14	3	5	2	7	4	27	7.91
November		8	7	1.9	11	1	13	1	6	23	3	9	23	5.53
December		9	9	2.5	2	1	26	6	20	20	5	0	13	5.09
YEAR ...		35	33	1.9	117	46	130	36	129	160	63	207	210	6.02

SUMMARY OF METEOROLOGICAL OBSERVATIONS AT JERUSALEM FOR THE YEAR 1936

GOVERNMENT OF PALESTINE
Department of Agriculture and Forests
JERUSALEM

$\varphi = 31° 47'$ N. $\lambda = 35° 13'$ East of Greenwich. $H = 783.5$ metres. $h_b = 1.5$ metres. $h_r = 1.0$ metres. $C_h = +67.5$ mm.

29646—6/36—3,330—G.C.P.

Month	Mean Pressure		Air Temperature (Centigrade)										Relative Humidity (%)				Vapour Pressure (mm.)				Cloud Amount (0—10)				Rainfall (mm.)			Days with		Wind									Evaporation
																														Force	Direction (8ths)									
																														8 h.	Number of Observations in which the Wind-Direction was recorded as									
	(mm.)	Standard (mm.)	8 h.	14 h.	20 h.	Mean	Mean Maximum	Mean Minimum	Absolute Maximum	Date	Absolute Minimum	Date	8 h.	14 h.	20 h.	Mean	8 h.	14 h.	20 h.	Mean	8 h.	14 h.	20 h.	Mean	Total mm.	Maximum 1 day Amount	Maximum 1 day Date	≧ 0·1 mm. of rain	≧ 1·0 mm. of rain	Scale 0—12	N	NE	E	SE	S	SW	W	NW	Calm	mm. per day
1936	8 h.																																					
January ...	695.55		9.7			14.3	15.8	6.8	20.7	28	5.0	1,25	84				7.5				3.6				34.9	8.5	12	8	8	1.0	0	0.5	8	5.5	1	1	5	0	10	2.69
February	91.91		10.0			10.9	15.2	6.6	20.6	29	2.3	15	78				7.1				4.8				149.4	57.0	13	9	8	1.7	0	0	3.5	1	0.5	2	13	2	7	3.57
March ...	93.73		13.3			14.0	19.2	8.9	29.0	27	4.3	13	66				7.5				3.2				44.4	22.0	10	4	4	1.1	0	2	5	0	0	2	8	0	14	4.43
April	93.38		16.7			17.5	23.7	11.3	36.3	23	5.2	2	68				9.6				3.1				18.0	9.8	13	2	2	1.5	0	0	6	2	1	1	14	1	5	5.81
May	90.99		20.4			19.8	26.0	13.7	33.5	24	10.0	1	52				9.3				3.5				Drops	Drops	Several Dates	0	0	0.9	0	0	3	3	0	1	9	0	15	6.84
June	92.03		21.6			21.3	26.8	15.8	34.5	11	11.7	10	59				11.2				0.8				Drops	Drops	3.8	0	0	1.8	1	0	5	0	0	4	11	1	8	8.34
July	90.46		24.3			23.7	29.3	18.1	32.3	14	15.4	2	56				12.6				0.9				0.0	0.0	—	0	0	1.5	0	1	0	0	0	1.5	17.5	7	4	8.80
August ...	91.09		23.7			24.8	30.5	19.2	35.1	13	16.3	31	67				14.6				1.7				Drops	Drops	2	0	0	1.2	0	0	0	0	1	1	10	10	9	6.29
September	93.18		21.0			21.8	27.5	16.2	31.6	23	13.4	28	66				12.1				1.1				0.0	0.0	—	0	0	1.0	2	0	4	0	0	1.5	7	4.5	11	6.77
October ...	95.43		23.4			23.7	29.6	17.8	33.9	16	12.5	13	58				12.2				1.6				Drops	Drops	27,28	0	0	0.4	0	1	5	3	0	0	2	1	19	8.63
November	95.10		17.3			(18.8 | 24.6)	13.0	(29.0 | 8)	6.3	28	63				9.2				4.3				139.4	76.0	22	7	7	0.9	0	0	1.5	1.5	0	2	5	3	17	4.84
December	94.96		7.7			8.6	11.9	5.2	16.3	18	4.0	30	72				5.7				3.7				146.9	91.8	28	13	12	1.6	0	2	9	1	1.5	2.5	5	2	8	3.33
Year ...	693.13		17.4			18.0	23.3	12.7	—	—	—	—	66				9.9				2.7				532.7	—	—	43	41	1.2	3	6.5	50	17	5	19.5	106.5	31.5	127	5.86

SUMMARY OF METEOROLOGICAL OBSERVATIONS AT BEIT GAMAL FOR THE YEAR 1936

GOVERNMENT OF PALESTINE
Department of Agriculture and Forests
JERUSALEM

$\varphi = 31° 43'$ N. $\lambda = 34° 59'$ East of Greenwich $H = 320$ metres $h_r = 1.0$ metres

29646—1/00—3,330—G.C.P.

Month	Mean Pressure		Air Temperature (Centigrade)										Relative Humidity (%)				Vapour Pressure (mm.)				Cloud Amount (0—10)				Rainfall (mm.)			Days with		Wind									Evaporation
																														Force	Direction (8ths + 14th + 29th)									
																														Mean of day	Number of Observations in which the Wind-Direction was recorded as									
	(m.b.)	Standard (mm.)	8 h.	14 h.	20 h.	Mean	Mean Maximum	Mean Minimum	Absolute Maximum	Date	Absolute Minimum	Date	8 h.	14 h.	20 h.	Mean	8 h.	14 h.	20 h.	Mean	8 h.	14 h.	20 h.	Mean	Total mm.	Maximum 1 day Amount	Maximum 1 day Date	≧ 0·1 mm. of rain	≧ 1·0 mm. of rain	Scale 0—12	N	NE	E	SE	S	SW	W	NW	Calm	mm per day
1936																																						
January ...			(11.7)	17.9	13.1	(13.3)	18.7	(10.6)	25.9	28	(8.9)	1)	(75)	52	72	(74)	(7.7)	7.9	8.0	(7.9)	4.9	5.5	2.2	4.2	24.5	10.9	14	5	5	2.0	4	1	30	7	16	14	0	5	16	3.96
February			(12.3)	17.3	12.8	(13.4)	18.6	(10.4)	24.4	29	(7.5	15)	(67)	54	72	(70)	(7.2)	7.5	7.8	(7.5)	5.3	6.2	3.8	5.1	187.8	103.5	13	7	7	2.4	3	3	9	2	20	25	3	6	16	5.04
March ...			(15.8)	21.2	15.0	(16.4)	22.1	(12.4)	32.5	27	(8.8 | 13)	(60)	43	66	(63)	(8.0)	8.1	8.4	(8.2)	(4.0 | 4.5)	1.6	(3.4)	56.9	49.2	10	2	2	1.9	5	11	19	4	15	15	2	9	13	5.68
April			19.5	25.1	17.4	19.1	26.3	14.4	30.4	23	9.3	4	56	37	64	60	9.4	8.7	9.4	9.2	5.3	3.5	1.2	3.3	15.6	7.0	14	3	3	1.9	4	4	10	1	13	23	6	12	17	6.31
May			22.6	27.5	19.9	21.7	29.2	16.9	37.7	24	12.9	1	47	34	66	56	9.5	9.2	11.5	10.1	3.9	4.2	2.5	3.5	0.5	0.5	14	1	0	1.9	5	9	9	9	6	12	6	24	13	8.18
June			23.6	28.1	21.5	22.9	29.7	18.3	37.3	11	15.6	10	59	41	78	68	12.7	11.4	14.8	13.0	1.9	1.0	0.8	1.2	0.0	0.0	—	0	0	2.3	3	5	0	0	11	9	8	39	15	6.61
July			27.2	30.7	24.6	26.0	32.9	21.3	36.0	14	19.2	1	56	44	70	68	15.0	14.3	18.1	15.8	2.2	1.2	0.1	1.2	0.0	0.0	—	0	0	1.8	11	0	0	1	8	7	9	39	18	6.17
August ...			27.5	30.8	25.0	26.4	32.5	22.4	37.0	1	18.8	1	61	47	79	70	16.6	15.5	18.5	16.9	4.4	2.2	1.8	2.8	Drops	Drops	20	0	0	1.6	15	0	0	2	3	6	9	37	21	5.53
September			25.1	29.1	21.9	23.9	30.2	19.4	36.1	22	16.8	21	55	41	72	64	12.9	12.3	14.1	13.1	2.0	1.6	0.8	1.5	0.0	0.0	—	0	0	1.3	28	6	0	0	6	4	5	23	18	6.21
October ...			25.2	31.2	22.8	24.8	32.4	19.8	37.9	15	16.5	7,31	48	36	62	55	11.4	12.0	12.7	12.0	2.4	2.3	1.4	2.0	Drops	Drops	Several Dates	0	0	1.5	26	5	14	3	5	2	7	4	27	7.91
November			19.1	24.1	18.0	19.2	25.3	15.5	37.7	7	9.1	28	59	47	70	64	9.6	10.4	10.7	10.2	4.7	5.1	3.3	4.4	163.3	73.8	23	8	7	1.9	11	1	13	1	6	23	3	9	23	5.53
December			10.5	14.5	11.3	11.2	15.5	8.7	21.5	17	3.7	29	65	56	66	62	6.2	6.9	6.6	6.6	4.5	5.1	3.6	4.4	108.4	27.3	29	9	9	2.5	2	1	26	6	20	20	5	0	13	5.09
Year ...			20.0	24.8	18.6	19.8	26.1	15.8	—	—	—	—	59	44	70	65	10.5	10.4	11.7	10.9	3.8	3.5	1.9	3.1	557.0	- -	—	35	33	1.9	117	46	130	36	129	160	63	207	210	6.02

SUMMARY OF METEOROLOGICAL OBSERVATIONS AT TEL-AVIV FOR THE YEAR 1936

GOVERNMENT OF PALESTINE
Department of Agriculture and Forests
JERUSALEM

29546—1000—3.3.37—G.C.P.

$\varphi = 32^{o}\ 4'$ N. $\lambda' = 34^{o}\ 46'$ East of Greenwich. H = 34 metres. $h_t = 4.8$ metres. $h_r = 1.0$ metres.

Month	Mean Pressure (m.b.)	Mean Pressure Standard (mm.)	Air Temperature (Centigrade) 7 h.	14 h.	21 h.	Mean	Mean Maximum	Mean Minimum	Absolute Maximum	Date	Absolute Minimum	Date	Relative Humidity (%) 7 h.	14 h.	21 h.	Mean	Vapour Pressure (mm.) 7 h.	14 h.	21 h.	Mean	Cloud Amount (0–10) 7 h.	14 h.	21 h.	Mean	Rainfall (mm.) Total mm.	Maximum 1 day Amount	Date	Days with ≥ 0·1 mm. of rain	Days with ≥ 1·0 mm. of rain	Wind Force Mean of day Scale 0–12	Wind Direction ($7^h + 14^h + 21^h$) Number of Observations in which the Wind-Direction was recorded as N	NE	E	SE	S	SW	W	NW	Calm	Evaporation mm. per day Piche
1936		Mean																																						
January ...	768.97		10.7	18.2	13.2	13.8	18.8	9.8	22.2	28	7.8	23	83	66	82	77	7.9	10.3	9.2	9.4	3.9	3.5	2.8	3.4	68.1	22.4	13	8	7	1.3	4	5	10	27	17	8	10	4	8	1.52
February	64.67		11.6	19.3	13.9	14.7	20.4	10.1	27.6	29	7.4	16	79	61	77	72	8.0	10.1	9.1	9.1	4.0	5.2	3.2	4.1	56.7	20.0	19	12	8	1.9	1	0	10	28	9	11	13	11	4	2.35
March ...	65.83		13.4	22.5	16.0	17.0	23.6	11.4	32.0	27	8.6	13	78	59	75	71	9.0	11.8	10.1	10.3	4.4	3.5	2.3	3.4	9.4	6.0	10	4	3	1.5	10	8	4	16	6	5	11	20	13	2.68
April	64.18		17.2	26.0	18.6	20.1	27.1	15.2	38.0	22	10.2	2	77	54	78	70	11.2	13.4	12.4	12.3	6.3	5.2	4.4	5.3	7.8	7.3	6	2	1	0.8	2	1	1	12	1	7	6	26	34	3.22
May	60.12		19.5	26.7	20.6	21.8	27.7	17.3	37.0	11	14.0	3	80	64	80	75	13.5	16.4	14.4	14.8	4.8	4.4	4.3	4.5	1.2	0.5	29	3	0	0.8	5	2	0	11	2	6	0	30	37	3.00
June	61.11		22.0	29.6	23.0	24.4	30.0	19.3	32.8	11	16.3	3	80	63	83	75	15.8	19.5	17.3	17.5	2.4	1.0	1.8	1.7	0.0	0.0	—	0	0	1.5	7	0	1	6	12	9	17	21	17	2.85
July	57.56		24.4	32.8	25.9	27.2	33.3	22.1	35.0	20,31	19.7	24	80	60	84	75	18.2	23.3	20.8	20.4	2.3	0.9	1.9	1.7	0.0	0.0	—	0	0	1.4	1	1	2	4	20	4	15	26	20	2.89
August ...	57.93		25.7	33.5	27.0	28.3	34.0	23.9	35.4	2	21.4	13,15	79	58	79	72	19.4	22.2	20.9	20.8	3.4	1.0	2.8	2.4	0.0	0.0	—	0	0	1.4	4	0	5	10	7	4	15	33	15	3.09
September	61.97		24.7	30.6	24.2	25.2	31.1	20.3	33.3	5	16.8	21	76	58	77	70	14.5	18.9	17.2	16.9	1.9	0.5	1.6	1.3	Drops	Drops	8,26	0	0	1.7	13	2	1	16	10	2	14	25	7	3.33
October ...	64.66		19.7	27.7	22.6	23.2	29.0	18.3	34.5	15	16.0	19	75	66	78	73	12.8	18.2	16.0	15.7	2.9	1.4	1.2	1.8	0.8	0.5	28	2	0	1.5	14	8	6	16	7	1	4	28	9	2.52
November	66.21		16.0	22.5	18.5	18.9	23.3	14.9	30.0	7	10.2	29	76	60	82	76	10.3	13.9	13.0	12.4	4.4	4.6	3.3	4.1	224.3	84.0	23	8	8	1.5	11	7	7	10	18	7	6	18	6	1.91
December	67.83		10.3	16.5	12.5	13.0	17.2	9.4	21.0	17	6.0	12,13	75	64	76	72	7.0	8.9	8.1	8.0	3.9	4.5	4.0	4.1	128.6	26.0	26	15	14	2.1	7	19	8	14	19	14	4	7	1	2.31
Year ...	763.42		17.7	25.5	19.7	20.6	26.3	16.0	—	—	—	—	78	62	79	73	12.3	15.5	14.0	13.9	3.7	3.0	2.8	3.2	496.9	—	—	54	41	1.4	79	53	55	170	128	78	115	249	171	2.64

SUMMARY OF METEOROLOGICAL OBSERVATIONS AT JERICHO FOR THE YEAR 1936

GOVERNMENT OF PALESTINE
Department of Agriculture and Forests
JERUSALEM

29546—1000—3.3.37—G.C.P.

$\varphi = 31^{o}\ 51'$ N. $\lambda = 35^{o}\ 27'$ East of Greenwich. H = — 250 metres. $h_t = 1.5$ metres. $h_r = 1.0$ metres.

Month	Mean Pressure (m.b.)	Mean Pressure Standard (mm.)	Air Temperature (Centigrade) 8 h.	14 h.	20 h.	Mean	Mean Maximum	Mean Minimum	Absolute Maximum	Date	Absolute Minimum	Date	Relative Humidity (%) 8 h.	14 h.	20 h.	Mean	Vapour Pressure (mm.) 8 h.	14 h.	20 h.	Mean	Cloud Amount (0-10) 8 h.	14 h.	20 h.	Mean	Rainfall (mm.) Total	Maximum 1 day Amount	Date	Days with ≥ 0·1 mm. of rain	Days with ≥ 1·0 mm. of rain	Wind Force Mean of day Scale 0-12	Wind Direction ($8^h + 14^h + 20^h$) Number of Observations in which the Wind Direction was recorded as N	NE	E	SE	S	SW	W	NW	Calm	Evaporation mm. per day Piche
1936																																								
January ...			14.1	21.3	15.3	15.3	22.2	10.6	26.5	28	7.5	23	74	51	71	72	8.8	9.4	9.2	9.1	4.3	3.9	1.3	3.2	18.0	6.5	14	4	3	1.6	24	19.5	4	10	8.5	3.5	2	14.5	7	3.58
February			15.9	22.0	16.7	16.6	23.0	11.6	30.0	29	7.0	16	63	43	61	62	8.5	8.4	8.7	8.5	4.6	4.3	3.5	4.1	13.5	4.0	17	6	5	1.9	12.5	4	1	14.5	18.5	11	7	11.5	7	4.70
March ...			19.3	26.5	19.6	19.6	27.5	13.2	34.5	27	8.0	13	50	29	49	50	8.3	7.4	8.4	8.0	2.6	3.0	1.3	2.3	24.0	16.5	10	3	3	1.8	25.5	21	4	11.5	3.5	5	6	11.5	5	6.38
April			23.4	30.2	23.0	23.3	31.4	16.6	43.0	23	10.5	2	49	30	47	48	10.5	9.5	9.7	9.9	2.7	2.2	0.7	1.9	4.5	3.5	6	2	2	1.8	18	15	2	12.5	7.5	7	8	12	8	7.30
May			26.5	33.3	26.3	26.4	34.4	19.4	40.0	23	16.0	1	43	25	39	41	10.9	9.2	9.7	9.9	2.3	3.3	1.6	2.4	0.0	0.0	—	0	0	2.1	24	20	2	19.5	8.5	6	5	4	7	9.40
June			28.5	35.7	28.4	28.4	36.6	21.0	42.5	20	18.0	16	47	26	38	42	13.5	11.4	10.7	11.9	0.7	0.4	0.4	0.4	0.0	0.0	—	0	0	1.9	17.5	18	1	7.5	14	1.5	15	8.5	7	9.68
July			31.0	37.9	31.6	31.0	39.2	23.5	44.5	31	21.5	2,11	50	29	38	44	16.7	14.0	13.0	14.6	0.5	0.4	0.6	0.3	0.0	0.0	—	0	0	1.8	17.5	9.5	5	17	15	4	6	10	9	9.94
August ...			32.1	38.4	32.2	32.1	39.4	25.8	43.2	14	22.7	29,31	57	38	52	54	20.2	19.6	18.7	19.5	1.1	0.5	0.2	0.6	0.0	0.0	—	0	0	1.7	17	14.5	5	19	12	4	1	12.5	8	9.48
September			28.6	35.2	27.9	28.2	36.1	21.1	41.0	23	17.0	21	53	35	50	52	15.2	14.9	13.7	14.6	0.5	0.3	0.0	0.3	0.0	0.0	—	0	0	1.8	19.5	20.5	8	12.5	10	3.5	5	7	4	8.16
October ...			26.9	35.3	26.5	27.2	36.6	20.1	41.5	21	17.8	8	47	29	47	47	12.5	12.4	12.1	12.3	1.3	1.6	0.9	1.3	Drops	Drops	27	0	0	1.5	37.5	16.5	5.5	7.5	8.5	0	1	6.5	10	7.75
November			20.9	27.5	20.3	21.2	28.7	16.3	35.0	7	10.0	29	61	39	61	61	11.1	10.8	10.8	10.9	4.4	4.4	3.4	4.1	50.0	33.0	22	7	7	1.7	21.5	15	3.5	12	14	6	5	13	0	4.75
December			13.2	19.2	13.7	13.9	20.0	9.6	23.2	1	3.3	12	67	49	68	68	7.6	8.1	7.9	7.9	4.4	4.7	4.4	4.4	32.0	16.0	28	7	6	2.2	18.5	13.5	4	7.5	3	15.5	11	15	5	3.65
Year ...			23.4	30.2	23.5	23.6	31.3	17.4	—	—	—	—	55	35	52	53	12.0	11.3	11.0	11.4	2.4	2.4	1.4	2.1	142.0	—	—	29	26	1.8	250	187	45	151	123	67	72	126	77	7.01

SUMMARY OF METEOROLOGICAL OBSERVATIONS AT ACRE FOR THE YEAR 1936

GOVERNMENT OF PALESTINE
Department of Agriculture and Forests
JERUSALEM

29646—1000—3.3.37—G.C.P.

φ = 32° 55′ N. λ = 35° 4′ East of Greenwich H = 18.7 metres. h_t = 1.60 metres. h_r = 1.0 metres

Month	Mean Pressure		Air Temperature (Centigrade)									Relative Humidity (%)				Vapour Pressure (mm.)				Cloud Amount (0–10)				Rainfall (mm.)			Days with		Wind								Evaporation
																												Force	Direction (8h + 14h + 20h)*								mm. per day
	(m.b.)	Standard (mm.)	8 h.	14. h.	20. h	Mean	Mean Maximum	Mean Minimum	Absolute Maximum	Date	Absolute Minimum	Date	8 h.	14 h.	20 h.	Mean	8 h.	14 h.	20 h.	Mean	8 h.	14 h.	20 h.	Mean	Total mm.	Maximum 1 day Amount	Maximum 1 day Date	≧ 0·1 mm. of rain	≧ 1·0 mm.	8 h. Scale 0–12	Number of Observations in which the Wind-Direction was recorded as N	NE	E	SE	S	SW	W	NW	Calm	Piche.
1936																																					
January ...			12.9	19.2	—	14.4	20.3	8.6	24.5	28	5.5	23	72	63	—	—	7.9	10.6	—	—	5.2	4.9	5.1	5.1	73.0	21.0	13	9	7	3.3	1	3	6.5	45.5	28	3	3	1	2	5.24
February			12.9	18.2	—	14.4	19.9	9.0	24.5	29	5.0	16	74	55	—	—	8.1	8.5	—	—	5.6	5.3	6.2	5.7	87.5	17.0	19	10	10	2.6	1.5	0	1	40.5	24.5	9.5	6.5	3.5	0	4.82
March ...			16.7	21.2	(14.4)	(15.4)	22.7	9.5	34.0	27	4.8	13	69	54	(67	64)	8.5	10.1	(8.2	8.9)	4.4	3.5	2.4	3.4	16.8	7.0	10	6	5	1.9	4.5	3	4	28	21.5	10	4	10	8	5.20
April			20.8	24.7	—	19.0	25.9	12.2	41.9	23	6.0	4	56	44	—	—	10.2	10.0	—	—	4.5	3.3	2.9	3.6	8.6	3.3	29	4	4	1.5	3	1.5	2	15	19	19	14	13.5	3	5.83
May			22.7	24.9	20.3	20.4	27.9	13.6	39.6	24	10.8	1	61	58	74	68	12.5	13.4	13.2	13.0	3.3	2.7	3.0	3.0	18.5	17.0	15	2	2	1.0	5.5	1.5	3.5	8.5	21	26.5	13	4.5	9	5.36
June			24.8	26.0	—	22.2	27.1	17.2	31.8	11	13.2	11	64	64	—	—	14.8	15.8	—	—	2.7	2.8	—	—	Drops	Drops	4	0	0	1.7	0	0.5	0.5	5	12.5	27	9.5	1	4	4.50
July			27.5	29.3	—	25.6	30.3	20.8	31.8	30	17.2	2,6	68	63	—	—	18.5	19.1	—	—	3.1	3.2	—	—	0.0	0.0	0	0	0	1.4	0	0	0	3	17	27.5	3.5	1	10	4.21
August ...			28.8	30.5	—	27.2	31.7	22.8	32.8	14	20.0	13,16,28	66	57	—	—	19.4	18.6	—	—	4.6	2.6	—	—	Drops	Drops	16,30	0	0	1.5	0.5	0	0	1.5	21	24	9.5	1.5	4	5.21
September			27.0	29.0	—	24.5	30.4	18.9	32.0	23	14.6	21,22	52	51	—	—	14.0	15.0	—	—	2.8	1.6	—	—	Drops	Drops	26	0	0	0.6	4.5	0	0	2.5	12.5	10.5	6	7	17	6.77
October ...			25.1	28.2	—	23.6	30.8	16.3	40.0	15	12.8	19	57	52	—	—	13.3	14.8	—	—	2.2	2.2	—	—	19.0	16.0	5	2	2	0.9	5	2	6	6	15	7.5	5	6.5	9	5.94
November			20.4	23.4	—	19.8	26.0	13.7	33.8	8	9.6	27,29	59	63	—	—	10.6	13.5	—	—	4.9	4.3	—	—	184.5	38.0	23	8	8	1.9	3.5	2.5	5	9	12	12.5	3.5	3	9	5.66
December			12.6	17.0	—	13.5	18.4	8.6	22.4	5	5.1	11	60	50	—	—	6.5	7.2	—	—	5.3	5.0	—	—	94.0	19.0	28	11	10	2.9	0.5	8	7.5	19	9.5	12.5	1	1	3	5.94
Year ...			21.0	24.3	—	20.0	25.9	14.3	—	—	—	—	62	56	—	—	12.0	13.0	—	—	4.0	3.4	—	—	498.9	—	—	52	48	1.8	29.5	22	36	183.5	213.5	189.5	78.5	53.5	78	5.39

*8h+14h from June 1936

SUMMARY OF METEOROLOGICAL OBSERVATIONS AT HAIFA FOR THE YEAR 1936

GOVERNMENT OF PALESTINE
Department of Agriculture and Forests
JERUSALEM

29646—1000—3.3.37—G.C.P.

φ = 32° 48′ N. λ = 34° 59′ East of Greenwich. H = 15.8 metres. h_t = 1.5 metres. h_r = 1.0 metres. C_0 = + 1.4 mm.

Month	Mean Pressure		Air Temperature (Centigrade)									Relative Humidity (%)				Vapour Pressure (mm.)				Cloud Amount (0–10)				Rainfall (mm.)			Days with		Wind								Evaporation
																												Force	Direction (8h + 14h)								mm. per day
	(m.b.)	(mm.) 8 h.	8 h.	14 h.	20 h.	Mean	Mean Maximum	Mean Minimum	Absolute Maximum	Date	Absolute Minimum	Date	8 h.	14 h.	20 h.	Mean	8 h.	14 h.	20 h.	Mean	8 h.	14 h.	20 h.	Mean	Total mm.	Maximum 1 day Amount	Maximum 1 day Date	≧ 0·1 mm. of rain	≧ 1·0 mm.	8 h. Scale 0–12	Number of Observations in which the Wind-Direction was recorded as N	NE	E	SE	S	SW	W	NW	Calm	Piche.
1936																																					
January ...		763.13	14.4	17.7		14.4	18.7	10.2	22.9	28	8.1	2	69	64			8.4	9.7			3.2	2.7			87.5	20.5	13	9	9	2.5	0.5	0.5	6	24	22.5	6	1.5	0	1	4.90
February		58.28	15.2	18.7		15.2	19.9	10.6	24.5	5	7.2	14	63	63			8.1	10.2			3.3	2.7			52.9	13.5	11	8	8	2.1	0	1	11.5	14	9.5	14	8	0	0	5.48
March ...		60.33	18.2	21.2		17.8	22.6	13.0	33.4	27	7.4	13	68	63			10.6	11.7			2.7	2.3			19.1	7.6	9	4	4	1.5	0	0	13	21.5	11.5	8	5	0	3	6.11
April		59.28	22.0	25.5		20.9	26.3	15.5	41.2	22	10.2	4	72	62			14.2	14.9			1.0	0.2			13.5	5.5	13	3	3	1.6	0	0	9	14.5	5.5	15	15	0	1	5.94
May		56.18	23.7	25.8		22.4	27.1	17.7	37.4	11	14.2	22	64	62			14.0	15.2			1.2	0.8			10.9	5.7	15	3	3	1.6	0	0.5	3.5	5	2	10.5	25.5	15	0	5.78
June		57.07	26.3	27.6		24.7	28.6	20.8	36.0	11	18.9	10	80	75			20.4	20.5			0.8	0.3			0.0	0.0	—	0	0	1.6	0	0	3.5	10.5	7	10.5	17	6.5	5	5.96
July		54.34	29.1	30.6		27.6	31.2	23.9	34.0	30	21.4	6	78	74			23.3	24.1			0.4	0.3			0.0	0.0	—	0	0	1.1	0	0	6.5	11	4.5	4.5	18	13.5	4	5.57
August ...		55.09	30.3	31.6		28.8	32.1	25.5	34.2	15	22.8	13	83	80			26.7	27.7			0.1	0.1			0.0	0.0	—	0	0	0.9	0	0	2.5	5.5	3	12	23	11	5	5.53
September		58.16	28.3	29.6		26.5	30.3	22.7	32.5	22	19.4	29	84	82			24.0	25.1			0.3	0.2			0.0	0.0	—	0	0	1.0	0	1	12	16.5	5.5	6	12	6	1	5.63
October ...		60.57	26.6	29.0		25.7	31.0	20.4	39.9	15	17.7	19	80	78			20.8	23.1			0.8	1.1			4.0	2.5	5	2	2	1.1	0	5.5	16	10.5	2	4	14	10	0	5.29
November		61.01	22.0	24.8		21.4	26.1	16.6	35.0	7	10.5	27	85	77			16.7	17.7			2.8	2.7			241.0	76.0	24	8	8	1.7	0	6	20.5	15.5	4.5	3.5	5	3	2	4.82
December		62.50	13.9	17.7		14.2	18.7	9.8	22.8	11	5.2	29,31	64	70			9.1	8.3			3.3	3.9			136.5	19.5	27	11	11	3.4	1	1	10	16	8.5	8	6.5	2	0	4.55
Year ...		758.84	22.5	25.0		21.6	26.0	17.2	—	—	—	—	74	71			16.4	17.4			1.7	1.4			565.4	—	—	48	48	1.7	1.5	15.5	123	164.5	86	102	150.5	67	22	5.46

SUMMARY OF METEOROLOGICAL OBSERVATIONS AT BEISAN FOR THE YEAR 1936

GOVERNMENT OF PALESTINE
Department of Agriculture and Forests
JERUSALEM

29646—1000—3.3.37—G.C.P.

$\varphi = 32^{\circ}\ 30'$ N. $\lambda = 35^{\circ}\ 30'$ East of Greenwich H = — 118 metres $h_r = 4.0$ metres

Month	Mean Pressure		Air Temperature (Centigrade)									Relative Humidity (%)				Vapour Pressure (mm.)				Cloud Amount (0-10)				Rainfall (mm.)			Days with		Wind								Evaporation
																													Force	Direction (8h + 14h)								
	(m.b.)	Standard (mm.)	8 h.	14 h.	20 h.	Mean	Mean Maximum	Mean Minimum	Absolute Maximum	Date	Absolute Minimum	Date	8 h.	14 h.	20 h.	Mean	8 h.	14 h.	20 h.	Mean	8 h.	14 h.	20 h.	Mean	Total mm.	Maximum 1 day Amount	Maximum 1 day Date	≥ 0.1 mm. of rain	≥ 1.0 mm. of rain	8 h.	Number of Observations in which the Wind Direction was recorded as								mm. per day
																													Scale 0—12	N	NE	E	SE	S	SW	W	NW	Calm.	Piche
1936																																						
January ...			11.6	19.9		14.6	21.5	7.7	26.0	28	1.5	1	79	54			8.0	9.4			4.9	4.5			72.2	22.2	14	7	7	1.1	1	9	8	13.5	4.5	0	2.5	11.5	12	2.70
February			13.3	20.4		15.2	21.8	8.5	27.0	29	3.5	15	72	48			8.1	8.6			4.6	5.5			21.8	7.0	12	6	6	1.9	0	9	3	12.5	3.5	7	9	8	6	3.50
March ...			17.4	25.4		18.4	26.4	10.3	35.0	27	5.5	13	56	35			8.3	8.4			2.9	2.6			27.0	17.0	9	3	2	1.2	0	16	2	7.5	2.5	2	8.5	13.5	10	5.22
April			21.8	28.8		24.9	30.2	13.6	42.3	23	7.0	4	55	32			10.6	9.4			4.0	3.0			9.0	7.0	13	2	2	1.6	2	9.5	7	9.5	0.5	3	16	6.5	6	6.62
May			24.5	31.1		24.3	32.6	16.0	40.5	24	12.0	1,12	57	32			13.0	10.7			3.1	2.5			13.0	6.0	14	3	3	—	—	—	—	—	—	—	—	—	—	7.75
June			27.2	33.5		26.5	34.5	18.5	41.0	20	14.0	16	55	31			14.7	11.9			1.5	0.8			0.0	0.0	—	0	0	—	—	—	—	—	—	—	—	—	—	11.11
July			29.9	36.3		29.4	37.3	21.6	40.0	14,31	17.0	2	63	39			19.9	17.4			1.9	0.6			0.0	0.0	—	0	0	1.1	1	6	6.5	3.5	2.5	4.5	16	12	10	9.57
August ...			30.5	37.0		31.2	38.5	23.8	42.5	14	18.5	31	70	50			22.8	23.2			3.4	0.7			0.0	0.0	—	0	0	1.6	0	4.5	5.5	7.5	0.5	4.5	24	13.5	2	8.70
September			28.0	(35.4)		(28.2)	(37.2	19.3	40.5	22	15.5	29)	(58	33)			(16.1	14.0)			2.1	0.9			0.0	0.0	—	0	0	1.8	0	7.5	10	14.5	1	5	16	9	0	8.60
October ...			25.7	35.6		(27.2)	(36.8	17.6	41.5	15	14.5	7)	53	30			13.1	12.9			0.6	1.0			0.5	0.5	27	1	0	1.3	1.5	9	14.5	3	1	1	12.5	8.5	11	7.71
November			20.0	27.0		21.4	28.5	14.4	36.0	7	8.0	27	66	47			11.5	12.6			2.9	3.3			114.0	44.0	22	7	7	2.1	1.5	11.5	14	5.5	7	1.5	4.5	4.5	10	5.29
December			11.5	17.5		13.6	19.0	8.3	23.5	1	2.0	14	74	62			7.4	9.2			3.4	4.7			77.4	21.2	26	12	11	3.9	0	13	20	10	8.5	1	3	1.5	5	3.55
Year ...			21.8	29.0		22.7	30.4	15.0	—	—	—	—	63	41			12.8	12.3			2.9	2.5			334.9	—	—	41	38	—	—	—	—	—	—	—	—	—	—	6.69

SUMMARY OF METEOROLOGICAL OBSERVATIONS AT JENIN FOR THE YEAR 1936

GOVERNMENT OF PALESTINE
Department of Agriculture and Forests
JERUSALEM

29646—1000—3.3.37—G.C.P.

$\varphi = 32^{\circ}\ 27'$ N. $\lambda = 35^{\circ}\ 18'$ East of Greenwich. H = 160 metres $h_r = 1.0$ metres.

Month	Mean Pressure		Air Temperature (Centigrade)									Relative Humidity (%)				Vapour Pressure (mm.)				Cloud Amount (0—10)				Rainfall (mm.)			Days with		Wind								Evaporation
																													Force	Direction (8h + 14h + 20h)								
	(m.b.)	Standard (m.m.)	8. h.	14 h.	20 h.	Mean	Mean Maximum	Mean Minimum	Absolute Maximum	Date	Absolute Minimum	Date	8 h.	14 h.	20 h.	Mean	8 h.	14 h.	20 h.	Mean	8 h.	14 h.	20 h.	Mean	Total mm.	Maximum 1 day Amount	Maximum 1 day Date	≥ 0.1 mm. of rain	≥ 1.0 mm. of rain	Mean of day	Number of Observations in which the Wind-Direction was recorded as								mm per day
																													Scale 0—12	N	NE	E	SE	S	SW	W	NW	Calm	Piche
1936																																						
January ...			11.0	18.9	10.2	11.9	20.1	7.5	25.7	12	5.3	3									2.9	3.9	2.7	3.2	73.5	31.4	30	6	6	1.9	0	3	14.5	13.5	16	26	15	0	8	3.23
February			13.0	15.4	11.7	12.2	20.4	8.8	22.8	29	4.7	17									4.6	4.2	2.9	3.9	57.8	26.2	12	5	5	2.4	0	0	3.5	5	7.5	36	32	2	1	4.20
March ...			15.6	24.4	13.8	16.0	25.8	10.0	35.7	27	7.4	22									2.6	1.9	1.5	2.0	28.4	12.1	10	4	4	1.6	0.5	1	10.5	10.5	2	29	28	0.5	11	5.68
April			19.8	28.2	18.0	19.8	29.5	13.3	40.5	23	7.5	4,21									2.4	1.2	0.8	1.5	7.2	3.3	13	3	2	1.8	0	1.5	6.5	6.5	3	33	31.5	0	8	8.45
May			23.6	30.1	19.3	22.1	31.4	15.3	39.2	24	11.8	1									2.3	1.9	1.0	1.7	22.2	9.6	15	3	3	1.6	0	1	5.5	6.5	2.5	33	32.5	0	12	8.88
June			26.1	32.7	22.7	24.8	34.0	17.7	39.5	11	15.4	10									0.7	0.2	0.2	0.4	0.0	0.0	—	0	0	1.8	0	0	0	0.5	1	39	38.5	0	11	9.31
July			28.0	34.4	26.4	27.4	35.7	20.9	37.6	15	18.9	2,4									0.9	0.1	0.0	0.3	0.0	0.0	—	0	0	1.8	0	0	0	0	0	43	43	0	7	10.23
August ...			27.9	33.9	26.7	27.8	35.2	22.6	38.2	15	20.4	13									1.5	0.6	0.2	0.8	0.0	0.0	—	0	0	1.8	0	0	0	0.5	1	4	41.5	38	0	8	9.22
September			25.4	30.6	24.7	25.2	31.6	20.0	34.2	8	16.8	29									1.4	0.7	0.3	0.8	0.0	0.0	—	0	0	1.5	0	0	0	0	0	2	38.5	36.5	0	13	10.04
October ...			24.1	31.6	23.2	24.3	33.0	18.4	39.2	16	15.1	8									1.6	1.2	0.9	1.2	2.3	2.3	29	1	1	0.9	1	0	3	3.5	3.5	28	25	1	28	9.01
November			18.1	25.6	17.1	18.8	26.8	14.5	34.5	7	8.7	29									3.7	3.4	3.4	3.5	114.9	37.4	22	6	6	1.6	1	3.5	9	6.5	2	26	25	1	16	5.70
December			10.4	17.1	9.6	11.2	18.3	7.5	21.9	5	3.1	42									3.2	4.1	4.2	3.8	118.3	47.3	27	11	11	2.0	0	11	17	9	7.5	22.5	18	0	8	4.04
Year ...			20.2	26.9	18.6	20.1	28.5	14.7	—	—	—	—									2.3	2.0	1.5	1.9	424.6	—	—	39	38	1.7	2.5	21	67	62.5	51	305.5	363	4.5	131	7.31

SUMMARY OF METEOROLOGICAL OBSERVATIONS AT GAZA FOR THE YEAR 1936

GOVERNMENT OF PALESTINE
Department of Agriculture and Forests
JERUSALEM

29646—1000—3.3.37—G.C.P.

$\varphi = 31° 30'$ N. $\lambda = 34° 27'$ East of Greenwich. H = 48.3 metres. $h_t = 4.5$ metres. $h_r = 1.0$ metres. $C_h = +4.3$ mm.

Month	Mean Pressure (mm.)	Mean Pressure Standard (mm.)	Air Temperature (Centigrade) 8 h.	14 h.	20 h.	Mean	Mean Maximum	Mean Minimum	Absolute Maximum	Date	Absolute Minimum	Date	Relative Humidity (%) 8 h.	14 h.	20 h.	Mean	Vapour Pressure (mm.) 8 h.	14 h.	20 h.	Mean	Cloud Amount (0–10) 8 h.	14 h.	20 h.	Mean	Rainfall (mm.) Total (mm.)	Maximum 1 day Amount	Date	Days with ≥ 0.1 mm.	Days with ≥ 1.0 mm.	Wind Force 8 h. Scale 0–12	Wind Direction (8h.) Number of Observations in which the Wind-Direction was recorded as N	NE	E	SE	S	SW	W	NW	Calm	Evaporation mm. per day Piche
1936	8 h.																																							
January ...	759.93		11.6			15.0	21.4	8.5	24.4	28	5.9	10	80				8.1				2.6				18.7	6.3	4	5	4												2.52
February	55.87		13.3			15.5	21.5	9.5	27.6	29	6.1	17	77				8.8				3.1				93.6	30.0	12	7	7												3.29
March ...	56.99		15.9			17.4	24.0	10.9	33.4	27	6.4	13	78				10.5				2.5				23.6	17.8	11	3	3												4.25
April	56.28		19.8			20.6	27.3	13.9	41.1	24	8.2	4	73				12.6				2.7				4.9	4.9	13	1	1												4.91
May	53.00		22.5			22.2	28.9	15.5	37.7	11	12.6	1	69				14.0				2.4				1.1	1.1	29	1	1												5.12
June	53.95		24.5			23.6	29.4	17.8	38.2	11	15.0	3	76				17.4				0.6				0.0	0.0	—	0	0												4.39
July	51.28		27.0			26.6	32.5	20.7	36.1	24	17.3	1	76				19.9				1.2				0.0	0.0	—	0	0												4.44
August ...	51.84		27.7			28.0	33.5	22.4	35.6	16	20.0	6,31	79				21.7				2.0				0.0	0.0	—	0	0												4.38
September	54.87		24.7			24.8	31.0	18.6	34.8	3	15.3	22	81				18.7				1.1				0.0	0.0	—	0	0												4.24
October ...	57.38		22.1			24.0	30.9	17.0	36.1	15	13.1	19	81				15.9				1.4				0.0	0.0	—	0	0												3.46
November	58.05		17.2			20.0	26.0	14.1	35.1	8	7.7	29	89				12.9				3.2				97.9	27.4	21	7	7												3.24
December	59.30		10.3			13.3	18.9	7.7	22.6	3	2.0	12	79				7.5				3.6				122.3	42.9	28	12	11												2.80
Year ...	755.74		19.7			20.9	27.1	14.7	—	—	—	—	78				14.0				2.2				362.1	—	—	36	34												3.92

SUMMARY OF METEOROLOGICAL OBSERVATIONS AT BEERSHEBA FOR THE YEAR 1936

GOVERNMENT OF PALESTINE
Department of Agriculture and Forests
JERUSALEM

29646—1000—3.3.37—G.C.P.

$\varphi = 31° 14'$ N. $\lambda = 34° 48'$ East of Greenwich. H = 286 metres. $h_r = 1.0$ metres.

Month	Mean Pressure (m.b.)	Mean Pressure Standard (mm.)	Air Temperature (Centigrade) 8 h.	14 h.	20 h.	Mean	Mean Maximum	Mean Minimum	Absolute Maximum	Date	Absolute Minimum	Date	Relative Humidity (%) 8 h.	14 h.	20 h.	Mean	Vapour Pressure (mm.) 8 h.	14 h.	20 h.	Mean	Cloud Amount (0–10) 8 h.	14 h.	20 h.	Mean	Rainfall (mm.) Total mm.	Maximum 1 day Amount	Date	Days with ≥ 0.1 mm.	Days with ≥ 1.0 mm.	Wind Force 8 h. Scale 0–12	Wind Direction (8h.) Number of Observations in which the Wind-Direction was recorded as N	NE	E	SE	S	SW	W	NW	Calm.	Evaporation mm. per day Piche
1936																																								
January ...			9.5			—	21.8	—	28.0	28	—	—	76				6.8				1.7				15.5	8.0	13	3	3	0.9	0	1	13	0	0	1	7	0	9	3.69
February			11.4			—	21.1	—	26.5	29	—	—	63				6.3				3.6				44.0	20.0	12	6	6	1.3	0	0	14	3	3	1	3	0	5	4.83
March ...			15.3			—	26.3	—	35.0	27	—	—	56				7.2				2.4				14.0	7.0	9,10	2	2	1.1	0	0	11	0	2	0	6	0	12	6.66
April			20.2			—	31.3	—	41.1	23	—	—	54				9.4				2.3				2.0	2.0	12	1	1	1.2	0	0	7	0	2	0	9	0	12	8.35
May			23.1			—	32.1	—	37.3	28	—	—	51				10.7				2.1				Drops	Drops	30	0	0	0.8	0	0	4	0	1	0	8	0	18	9.97
June			24.8			—	32.4	—	40.3	11	—	—	54				12.5				1.6				0.0	0.0	—	0	0	0.8	0	1	1	0	0	1	12	0	15	9.44
July			27.2			—	34.3	—	37.0	24	—	—	58				15.6				2.2				0.0	0.0	—	0	0	0.5	0	0	1	0	0	1	10	0	19	9.45
August ...			27.0			—	34.1	—	39.0	14	—	—	68				17.9				3.0				Drops	Drops	13	0	0	0.5	1	0	0	0	0	0	12	0	18	8.11
September			23.6			—	31.2	—	34.5	23	—	—	62				13.5				0.9				0.0	0.0	—	0	0	0.5	1	2	0	0	0	1	4	0	22	7.82
October ...			23.3			—	33.6	—	39.1	16	—	—	52				14.0				1.7				Drops	Drops	27,28	0	0	0.8	1	2	11	0	2	0	5	0	10	8.48
November			16.9			—	28.3	—	36.0	7	—	—	64				9.2				2.0				44.5	22.0	22	4	4	1.2	1	1	5	0	2	3	7	0	11	6.05
December			9.7			—	18.5	—	22.0	9	—	—	68				6.1				3.3				81.0	25.0	27,28	7	7	2.1	0	2	15	0	7	2	3	0	2	4.59
Year ...			19.3			—	28.8	—	—	—	—	—	60				10.5				2.2				198.0	—	—	23	23	1.0	4	9	82	3	19	10	86	0	153	7.26

GPP. 4305—600 Bks. 20-10-37